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ENVIRONMENTAL ISSUES RELATED TO THE USE OF PESTICIDES

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

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ENVIRONMENTAL ISSUES RELATED TO THE USE OF PESTICIDES

FRIDAY, JUNE 10, 1988

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10:09 a.m., in room 406, Dirksen Senate Office Building, Hon. Quentin Burdick (chairman of the committee) presiding.

Present: Senators Burdick, Baucus, Lautenberg, Breaux, Reid, Stafford, Symms, Durenberger, and Pressler.

OPENING STATEMENT OF HON. QUENTIN N. BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator BURDICK. Welcome to today's hearing on environmental issues related to the use of pesticides. The primary subject of this hearing is the protection of ground water from contamination by pesticides.

Senator Durenberger and other members of this committee have introduced the Ground Water Safety Act, S. 1419, providing for a program to protect ground water from pesticide contamination. In addition, the Senate Agriculture Committee has reported a bill to extend the Federal pesticide statute, and this bill also addresses the problem of pesticide contamination of ground water.

Ground water provides drinking water for over one-half the population of the country and for over 60 percent of the people in my home State of North Dakota. Pesticides represent a significant part of the ground water pollution problem. The EPA has identified over 60 different pesticides in ground water in over 30 States.

This committee has made some progress in developing legislation to protect ground water from specific pollution sources such as landfills and leaky underground storage tanks, and under Senator Moynihan's leadership we are making progress toward a more comprehensive approach to ground water protection. Given the value of the ground water resource and the contamination problems posed by pesticides, it is clear that it is time to address the situation. I am confident that, working with our colleagues on the Agriculture Committee, we can develop an effective and responsible program to protect ground water from pesticide contamination.

I also want to mention that the committee hopes to hear the views and comments of witnesses on several other issues addressed in the pesticide reauthorization bill reported by the Agriculture Committee. I know that members are interested in proposals to limit liability of farmers under environmental statutes, and to clarify requirements for storage and disposal of cancelled pesticides. I look forward to hearing discussion of these issues.

We have an excellent group of witnesses on our agenda, and I want to thank them all for agreeing to testify. I turn now to my good friend, Senator Stafford, for any comments he may have to make.

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator STAFFORD. Thank you, Mr. Chairman. I do have some comments this morning.

Mr. Chairman, I want to commend you for holding this hearing on pesticide issues that are within the jurisdiction of this committee. I look forward to hearing the witnesses comment on S. 1419, a bill that addresses the serious problems of pesticide contamination of the Nation's ground water. That bill was introduced by our friend and colleague, Senator Durenberger, and cosponsored by 11 Senators, including four members of this committee and the chairman of the Agriculture Committee.

This committee had produced legislation over the last two decades that addresses ground water protection in one way or another. We have taken an especially active interest in this issue over the last 4 years. Subcommittees have held three hearings on the subject this year, and during the 99th Congress the subcommittee chaired by Senator Durenberger conducted seven ground water hearings.

The Environment and Public Works Committee played a major role in Senate consideration of ground water issues during floor debate on the FIFRA reauthorization in 1986. Thus, the members of this committee bring both some expertise and commitment to the problem of pesticides in ground water.

The timing for this hearing is important because there is currently pending on the Senate calendar, S. 1516, a bill reported by the Agriculture Committee. That bill contains ground water and other provisions that fall within the jurisdiction of this committee. It is important that the Senate have the benefit of this committee's review and views before beginning debate on these provisions.

I am particularly intent upon seeing that the Senate take into account this committee's views on liability for environmental damage from pesticides. S. 1516 exempts farmers from such liability under certain conditions but makes no provision for who, other than damage victims, will be responsible. I will be especially interested in hearing from today's witnesses accounts, if any exist, of damage already attributable to pesticide contamination; also, information on who is currently bearing the costs of that damage and who witnesses believe are the most appropriate parties to bear those costs. Someone will bear the costs and, if we are not careful, that someone will be the victims of the damage.

I look forward to the testimony and discussion of all issues before us, and I hope we can find environmentally responsible means to address the serious and perplexing problems associated with pesticide use. I thank you, Mr. Chairman.

Senator BURDICK. Senator Durenberger?

OPENING STATEMENT OF HON. DAVE DURENBERGER, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator DURENBERGER. Mr. Chairman, thank you for this opportunity to address an issue that, as the former chairman of the committee says, has been here before, probably not as often or with enough time to consider it as we would like, and that is why I would like to take a couple of minutes to review so we can all understand how it is that the Senate as a whole needs to come together on this very difficult issue.

This debate on the issue before us today began in 1985 as a series of negotiations between the trade association representing pesticide manufacturers and a coalition of environmental groups, which in early 1986 resulted in an agreement on a set of principles to protect ground water from contamination by pesticides. Once the principles were announced, the negotiations were expanded. They were conducted on the House side, rather than here, by the House Agriculture Committee, and they involved the EPA, the Farm Bureau, a variety of other ag groups, additional environmental groups, and House staff.

The basic structure of the FIFRA amendment to protect ground water was put together at that particular point and on that side of the Capitol. There was to be a water quality standard, called a ground water residue guidance level, which we will call total GRGL, and that was to guide regulatory action. Labels for pesticides with a potential leach into ground water were to be written so that the guidance levels would not be exceeded, and if the GRGL's were exceeded on a site-specific basis, the States and the EPA were to conduct a response, including bans on pesticide use in areas where contamination had occurred.

Largely completed, that proposal was brought over to this side of the Capitol in July of 1986 by Senator Paula Hawkins, who was a member of the Senate Ag Committee. It was quickly grafted onto a FIFRA authorization bill that had been moving through the Agriculture Committee, and it was reported to the full Senate in August. It was only at that point, August of 1986, that the Environment and Public Works Committee was brought into the discussion, and I recite this history, Mr. Chairman, to indicate that we, in effect, have from the beginning been captives of a legislative vehicle that we did not create.

I doubt this committee would have taken the approach to ground water protection which was produced by these interest group discussions on the House side. Indeed, at hearings which we held in September of 1986, we concluded that there were fundamental flaws in the Hawkins amendment. It was not a program to prevent ground water contamination. Its principal focus was response to contamination after it occurred.

The hearings which we had, and the work done by Senator Stafford on Superfund and Senator Chafee on RCRA, had convinced us that we must use a preventive approach; that responding to ground water contamination after it had already occurred would most often not be successful, and in any case would be very expensive.

Those experiences convinced all of us that prevention is the key to ground water protection, and that is the notion we tried to inject into the FIFRA debate in September of 1986.

We drafted our own amendments to the Ag Committee bill, as our colleague from Vermont has already indicated, amendments which were intended to be preventive in character. The amendments were adopted unanimously by the Senate in October of 1986. Then the FIFRA reauthorization failed. We refined our work and reintroduced it as S. 1418, the Ground Water Safety Act, at the beginning of the 100th Congress. Five members of this committee are sponsors; 20 members of the Senate are cosponsors.

It is not all we would like it to be. It still has a GRGL as a central feature, even though water quality standards are a difficult mechanism to use in preventing ground water contamination. It still has a site-specific response program that could be very resource-intensive. Those provisions are simply an inheritance from the debate, which were developed before our involvement, just to say that we weren't trying to reinvent this wheel.

But we have tried to make the proposed program more preventive. S. 1419 requires the manufacturers of pesticides which have the potential to leach, to develop best management practices to minimize ground water contamination. Users of the pesticides, the farmers, are to be informed on the implementation of these practices.

The Ground Water Safety Act requires the manufacturers of leaching pesticides to conduct monitoring programs at a representative number of sites. The bill triggers site-specific responses at an earlier stage—50 percent of the standard—before the GRGL has actually been exceeded and public health endangered, and S. 1419 uses a standard of protection which is designed to preserve the relatively pure character of existing ground water resources, rather than using a standard which takes into account the cost of cleaning up the water that has already been polluted.

So now, Mr. Chairman, we have a bill reported in April of this year by the Senate Agriculture Committee, S. 1516, which contains a ground water program. The bill is the old House program. It does not include the prevention amendments the Senate adopted in 1986. It is a clean-up program. It provides a Federal response after the damage has been done. It ignores all the work we have put in, all the lessons we have learned, and all the advice I have gotten from every farmer I know in the State of Minnesota, who says, "If you are going to go with one of these programs, concentrate, please, on prevention."

So, as I say, Mr. Chairman, I am very glad that you are bringing us back into the debate. I am certainly ready to make the case all over again because, as all of us so well know who represent rural States, ground water is a vast and uncontaminated national treasure and it is our job to keep it that way. In my opinion, S. 1516 can't do the job. It is little more than a sanction of contamination, capped at a level that reflects the cost of clean-up.

I would say also in addition, Mr. Chairman, that if we really care about farmers, we care about the small towns that we represent, we care about people with individual wells, millions of people in this country, we care about the wiser use of our financial and our natural resources, and we all care about rural America, we have to recognize that ground water is a rural resource and its contamination is strictly a rural problem in this country. If our colleagues on the Ag Committee really care, as I know they do, for their constituents in rural America, then they need to be somewhat more sensitive to the need for a preventive program. I think the Senate itself needs to hear from this committee on that subject before it takes any action.

Senator BURDICK. Senator Breaux?

OPENING STATEMENT OF HON. JOHN B. BREAUX, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator BREAUX. Thank you, Mr. Chairman. I will be very brief and very nontechnical.

Politics is really practicing the art of what is doable and what is not doable. That is the question that this Congress is going to have to look at. We are going to have to determine whether there are goals that some people would like to have attained, that are not going to be accomplished, I would venture to say, in this Congress unless there are some major compromises.

That is what happened last year, if we would remember. We worked out a bill that broke down at the very last few minutes. I am very afraid that unless there are some legitimate, practical, reasonable compromises this time, the same thing is going to happen. We are going to have people in two different groups, in two different camps, polarized, and everybody making great speeches about what they would like to have done, and there is nothing going to be done.

So I think that the goal of this committee, if we are interested in getting a FIFRA bill enacted in this Congress, is going to have to be that everybody is going to have to look at what is reasonable and what is practical and what is doable, as opposed to what some may like to have ultimately accomplished as an esoteric goal. We are talking the real world, and last year we didn't do it, and I am awfully fearful that this Congress we are not going to do it again unless we take that type of a middle ground approach. I hope we can move in that direction.

Thank you.

Senator BURDICK. We have statements from Senators Moynihan, Mitchell, and Baucus who are unable to be here this morning. Their statements will be included in the record at this point.

[The statements referred to and a statement from Senator Symms follows:]

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

This morning the Environment and Public Works Committee addresses a number of issues within our jurisdiction which are raised by the recently reported bill, S. 1516, the FIFRA Amendments. This bill includes provisions on groundwater, storage and liability, and sections which may affect SARA and RCRA. Therefore, it is appropriate that our committee review and perhaps modify.

Agricultural and residential application of pesticides has a major effect on groundwater. Beginning with aldicarb in 1980, followed by chlordane in 1983, and ethylene dibromide in 1984, the utilization of these types of chemicals has had major—if not readily discernible—impacts on both human health and the natural environment. Congress must ensure that the necessary research and regulatory frameworks are in place to assess these impacts and protect public health and the well being of our environment.

NEW YORK STATE PESTICIDE ISSUES

Contamination of New York States ground water by pesticides has become a serious concern during the past 10 years. The greatest cause of such contamination is agricultural usage, especially potato farming, but use and disposal of pesticides by homeowners also can create localized problems.

In the potato farming areas of eastern Suffolk County on Long Island, pesticide contamination has adversely affected both public and private water wells. A total of nine pesticides have been confirmed in New York groundwaters. Others have been detected in wells but absolute scientific identification has not been made. Aldicarb is the pesticide most widely detected in ground water; other pesticides that have been detected and include carabofuran, Dacthal, 1,2 dichloropropane and paraquat.

By April 1984, aldicarb had been detected in approximately 2,000 private wells in concentrations exceeding the State drinking water standard for aldicarb of 7 micrograms per liter. The use of Aldicarb has subsequently been eliminated on Long Island. To date, over 2,500 drinking water wells have been found with levels of pesticides above New York State Health Department drinking water guidelines. Affected residents have been provided with granular activated carbon treatment units to remove pesticides from their drinking water.

Recent surveys show that the number of wells that are affected by pesticides is increasing and the number of pesticides is increasing as well. Results are biased by the detection capabilities of monitoring and analytical technologies so that we often are unable to test for many compounds. Problems resulting from Aldicarb contamination resulted from its long term stability, or alternatively, its slow degradation.

Groundwater contamination by pesticides is expected to be less severe and less widespread in upstate New York than on Long Island, although the extent of groundwater contamination upstate New York has not been fully assessed. The first significant documentation of pesticide contamination in upstate New York came in 1983 when analyses by Cornell University and other researchers detected Adicarb in groundwater at levels exceeding 1 micrograms per liter at approximately 30 percent of 76 sites in areas considered to be at risk of Aldicarb contamination.

Another problem in New York and elsewhere is the widespread use of herbicides, fungicides and other chemicals on golf courses and private lawns. These chemicals cause problems when they become concentrated and mixed with other pollutants in runoff, or when they are disposed of improperly. One useful approach which has been implemented in some areas of New York State is a "pesticide clean up day" when small quantities of unused pesticides are voluntarily brought to a collection point for proper disposal by a licensed hazardous waste firm. Local government should take an active role in providing pertinent information about the potential harm of careless disposal of pesticides and organize community collection activities.

BEST MANAGEMENT PRACTICES

On a larger scale, we must legislate to encourage best management practices on farms, nurseries, and golf courses that will minimize adverse effects of pesticides. A good start has been made in the new non-point source provisions of the Clean Water Act, passed earlier this session. But unfortunately, the Administration has not seen fit to recommend funding for this important program. We need to encourage the use of the use of alternative agricultural control methods where appropriate—e.g. biological control. We must encourage our Land Grant Colleges and Extension services to devote more research and information dissemination regarding biological controls and integrated pest management which involve a range of techniques. Moreover, the registration procedure for biological controls must be improved because natural organism do not fit the procedures and characterization currently required for chemical registration.

Most importantly, distributors, users and the public must be trained and educated about all alternatives for controlling pests, including biological controls. If chemicals must be used then label directions must be followed. However, it is still possible for our farmers and industry to work together to develop procedures for applying pesticides only when necessary using an anticipatory approach, assuming suspect pests pose an immediate threat to crops. With the advent of the computer system, it may be possible to broadcast daily or weekly updates of local and regional pest occurrences to facilitate implementation of these systems within the Agriculture Extension Service Bureaus.

OPENING STATEMENT OF HON. GEORGE J. MITCHELL, U.S. SENATOR FROM THE STATE OF MAINE

Mr. Chairman, I would like to join you in welcoming our witnesses to today's hearing.

This hearing is important and timely in that it addresses the problem of protecting public health and the environment from pesticides and related products. Issues such as protection of ground water from contamination by pesticides, liability for use of pesticides, and storage and disposal of pesticides deserve careful review and consideration by this Committee.

I very much appeciate your efforts, Mr. Chairman, to provide for this hearing and to bring together the excellent witnesses on our agenda.

While we have made some progress in developing legislation to protect ground water quality, including Superfund, RCRA, and the Safe Drinking Water Act, we still have a long way to go. One of the major gaps in our framework for protection of ground water is the lack of a program to control the migration of pesticides to ground water.

I would like to commend the Agriculture Committee for recognizing this problem and for its work to develop the response program included in the recently reported pesticide reauthorization bill.

While the bill reported by the Agriculture Committee has several commendable provisions, I have serious concerns on several points.

I am concerned about the limited degree of public health protection to be provided by the proposed "Ground Water Residue Guidance Levels". I am concerned about the narrow view of the ground water resource to be protected. And, I am concerned about the lack of a specific plan to involve State governments in protecting ground water from contamination. I look forward to hearing the views of our witnesses on these and other ground water program issues.

I also want to express my deep concern for the proposal in the bill reported by the Agriculture Committee limiting liability of agricultural producers under environmental statutes. This Committee firmly opposed a more limited version of this provision in the last Congress and the provision was deleted on the Senate floor.

I do not know of any developments since that time which would suggest that we should change our position on this important issue, but I am willing to listen to any views or comments on the topic from our witnesses.

Finally, Mr. Chairman, I am pleased that the most recent pesticide reauthorization bill does not include a provision preempting the authority of States to set pesticide residue tolerances more stringent than the Federal government. I am convinced that such a provision would be bad policy and a very bad precedent for other environmental statutes.

I know that Senator Leahy, the Chairman of the Agriculture Committee, is firmly opposed to preemption and I that he will work to keep preemption out of the pesticide law.

Mr. Chairman, I look forward to working with you and other members of the Congress in addressing these important issues.

Thank you, Mr. Chairman.

OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Mr. Chairman, let me begin by expressing my appreciation for calling today's hearing. The need to update this nation's pesticide law is long overdue. It has been ten years since the law has been renewed. Since that time, our awareness over the potential for agricultural chemicals to be both friend and foe has greatly expanded.

The Agricultural Committee reported amendments to FIFRA on May 13. Since that time you have attempted to gain a timely referral to keep FIFRA on track. The Environmental Committee has had a long-standing interest in EPA's pesticide program. When ethylene dibomide (EDB) gained national attention as a potent carcinogen in groundwater, it was this Committee that pushed EPA to take swift action. Yet, there are those who have attempted to thwart this Committee's legitimate interests in helping to shape the best pesticide legislation possible.

I am glad you did not wait for all of the jurisdictional questions to be resolved and are moving forward to craft responsible legislation which can be enacted during this Congress.

Like you, Mr. Chairman, I represent a farm state. Agriculture depends upon chemicals to exist in today's highly competitive worldwide economy. While these chemicals are an integral part of the farm economy, abuse of these chemicals can seriously disrupt rural life.

Farmers are not in agriculture to become rich. The painful past few years should have demonstrated to everyone that farming isn't some fly-by-night get-rick-quick scheme. Farming is a way of life based upon the ability to work hard, earn a decent living and live in a clean and healthful environment.

Rural America is heavily dependent on groundwater. Nationwide, 90 percent of rural America depends upon groundwater for drinking water. Whether or not we are talking about individual wells or small community water systems, the ability to treat contaminated water is prohibitively expensive and just not a realistic option.

Pesticide contamination is troubling. The technology that exists to remove organic contaminants from drinking water through the use of technologies such as activated carbon (GAC) filtration is not a reasonable alternative for small communities and individual wells.

A technology approach for rural America is out of the question. Prevention must drive this nation's groundwater policy. It is the correct policy for all of America. But particularly in rural areas—prevention is imperative.

At least 23 states have experienced groundwater contamination by pesticides. Sixteen different pesticides have polluted groundwater through normal application.

The Department of Agriculture has concluded that 50 million people obtain their drinking water from aquifers in areas of the country that are susceptible to contamination from agricultural chemicals. 814 counties have areas susceptible to pesticide contamination. In looking at pesticide use nationwide, the Department of Agriculture indentified 38 pesticides as having a high probabily of moving to groundwater.

In my own state of Montana the first early warning signals of potential problems have been observed. When the Montana Department of Fish, Wildlife and Parks looked at KoKanee salmon from Flathead Lake, 16 different pesticides were measured in the fish's tissue. These pesticides play an important role in the agricultural economy, yet fouling one's nest can never be considered acceptable. Pesticides have been found in groundwater in north central Montana.

What is needed is pesticides that do not leach into groundwater. Companies that manufacture these chemicals have a responsibility to America's farmers. Agricultural chemicals do not need to threaten drinking water.

We must prevent contamination of rural America's life blood. Once a pesticide has been found in groundwater, both the state and EPA must have the authority to move quickly and have the company who manufactured the chemical clean-up and protect the aquifer before public health is threatened.

This Committee has pending legislation to both encourage development of non-leaching pesticides and to provide the tools necessary for the chemical producer to clean-up the polluted aquifer.

It is my hope that shortly following today's hearing, we will move to report an amendment to the pending pesticide legislation that achieves this goal. America's farm communities are entitled to both effective and safe agricultural chemicals.

OPENING STATEMENT OF HON. STEVE SYMMS, U.S. SENATOR FROM THE STATE OF IDAHO

Mr. Chairman, I appreciate the opportunity to be present at this hearing on pesticide issues. All too often, pesticides get a bad rap. It seems that society has lived with pesticides as a fact of life for long enough that many forget what they are and why they are used in the first place.

I, for one, am thankful for the modern chemists and physicists that have brought about today's pesticide technology. Today's pesticides are thoroughly researched and tested, meticulously labeled, and carefully marketed. It would be pure primitivism for us to shackle or hamper this technology, denying its many benefits. These benefits lead to a generally higher standard of living. What, for example, would happen if we had no access to this technology, as is the case in many underdeveloped third world nations? Obviously, pests could not be controlled. Vermin would of necessity be an accepted part of the food supply. The disease transmitted by these vermin would spread quickly through the population. The much lower quality, consistency and taste of our food would be the least of our concerns.

Crop yields would be lower. Farmers and the rural communities they support would suffer tremendous instability, with commodity prices swinging wildly with each crop-destroying pest that came along. Individual farm families could be ruined in a day. At the same time, however, food costs would likely increase without farmers receiving the profit. These higher prices would lessen the ability of low income families to put food on their tables.

Wood and wood products would also be costly, contributing to high housing costs and a greater incidence of homelessness. Perhaps even more dangerous, the durability of wood and wood structures would be greatly decreased, again causing housing and home safety problems.

Mr. Chairman, it is because of the tremendous advantages we as a society enjoy that Congress originally crafted the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), requiring pesticide regulators to carefully weigh a pesticide's costs and benefits. The nation's agricultural sector being the most highly impacted by such regulation, the task was originally assigned to the U.S. Department of Agriculture. Now, even though the regulatory responsibility has been assigned to the Environmental Protection Agency, the Agricultural Committees of Congress retain their jurisdiction over the statute.

I doubt that it is the Committee's contention that no other Committee of the Senate should take environmental considerations into account when legislating within their areas of jurisdiction. I can find no reason, therefore, why we should object to the Agriculture Committee having incorporated environmental considerations into their most recent FIFRA authorization. The Ag. Committee has, in my opinon, gone the extra mile in that regard and should be commended for it.

I would hope, Mr. Chairman, that this hearing does not indicate an intention to delay or otherwise burden the FIFRA bill currently pending on the Senate calendar. The nation's agricultural sector has awaited a FIFRA reauthorization for three Congresses now. It would be irresponsible for this Committee to snatch defeat from the jaws of victory and take action that would doom the chances for a consensus bill in this Congress.

Senator Burdick. If there are no further statements from the Senators, we now call on our first witness, Dr. John Moore, Assistant Administrator for Pesticides and Toxic Substances, Environmental Protection Agency. Good morning, doctor.

STATEMENT OF JOHN A. MOORE, ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY

Mr. Moore. Good morning, Mr. Chairman, members of the subcommittee. I have a very brief opening statement.

The Environmental Protection Agency has been working for the last couple of years in trying to come up with what it feels is a workable plan or approach to the issue of pesticides in ground water. That effort to date has culminated recently in the issuance of a draft strategy that proposes the focus be on—in fact, must be on—prevention of ground water contamination that can result in unreasonable risk to human health or to the environment.

However, because the scientific understanding of ground water contamination is still somewhat rudimentary and is changing rapidly, we feel the agency must have both the flexibility in responding to ground water problems and the ability to effect regulatory changes in a timely fashion, in order to prevent pesticides in ground water from reaching unacceptable levels. In addition, given the localized nature of ground water concerns, there must be a strong State role in tailoring pesticide management measures to local needs. Each state, in our opinion, would need to meet the national goals of preventing unacceptable contamination.

The Agency does not support the ground water provisions contained in either S. 1419 or S. 1516, for reasons that have been stated by various Agency representatives in previous testimony before this and other congressional committees, and I have provided the committee these testimonies along with the statement that I have today. In addition, as you know, the Agency has also been active in participation with the Senate as it relates to reauthorization of FIFRA, of which the ground water section is but one piece.

The Agency continues to believe that any reauthorization of FIFRA must address the problem the Agency is experiencing with the current indemnification, storage, and disposal provisions of FIFRA. Moreover, if the Agency is to be held responsible for completing re-registration within a 10-year period, it must have the necessary resources and authority to accomplish the job. The administrative procedures for conducting re-registration therefore must be streamlined.

As I have stated repeatedly throughout the past few years, despite the hard work by many people in the private and public sector, the same pesticide regulatory problems remain, particularly in the areas of indemnification, storage, and disposal. As stated in previous testimony, EPA's ability to carry out its responsibility under FIFRA section 19 is hampered by the act itself. FIFRA does not give us clear authority to ensure the safe collection and storage of suspended and cancelled products.

We support giving the agency the ability to issue enforceable regulations governing disposal of pesticides. This would ameliorate the growing public perception that the Federal Government is unable to adequately protect their environment. For an agency such as EPA, there is no regulatory tool that is more powerful in the long run than its credibility with the American public.

That concludes my prepared remarks, Mr. Chairman.

Senator **Burdick**. Thank you.

I note that my neighbor from South Dakota has joined us. Senator Pressler, do you have any opening statements?

OPENING STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator **Pressler**. Thank you, Mr. Chairman. I do. I shall put it in the record.

Let me commend you and staff for holding this hearing. It is a matter of great interest in South Dakota, where we have increasing ground water contamination. Over the years our farmers have become more and more dependent on agricultural chemicals to produce their crops.

I have a statement regarding that. I also have a statement regarding the entire liability system, about some of the liability awards causing economic problems, and in many cases the plaintiffs don't really get the money, but that is a separate issue. I also have some statements on the FIFRA bill and I ask unanimous consent to place these in the record.

Senator **Burdick**. They will be received.

[Senator Pressler's statement follows:]

Opening Statement of Hon. Larry Pressler, U.S. Senator From the State of South Dakota

Mr. Chairman, I commend you for scheduling this hearing on pesticide problems. This is a very important issue of great concern to rural residents.

Groundwater contamination is a serious problem. Most farmers, ranchers and rural communities use groundwater as their primary source of drinking water. Since these people must drink the water, they are very concerned about its quality.

However, farmers also depend on farming the land for their livelihood. Over the years, farmers have become more and more dependent on agricultural chemicals to produce their crops. Regulation of agricutlural chemicals must strike a balance between the environmental, health and economic factors.

An issue in which I am particularly interested is the farmer liability issue. For many years I have advocated reform of our entire liability system. Huge liability awards have caused many economic problems, and in most cases the lawyers are the only real winners. Farmers, small businesses, and huge corporations are all affected by liability cases. We need to address the entire liability issue. Farmers should not be held liable if they have properly handled and managed pesticides. They must drink the groundwater and live in the area in which pesticides are used. They will not endanger themselves by knowingly misusing agricultural chemicals and polluting that groundwater.

In conclusion, I support enactment of a realistic FIFRA bill. We need to pass a bill. But we will not be able to pass a bill if it is loaded down with all kinds of amendments. If this committee takes a realistic approach on a compromise FIFRA bill, it can be enacted and rural America will benefit much more than if no bill is enacted.

Mr. Chairman, I urge our colleagues to work for legislation that can pass the Senate.

Senator BURDICK. Dr. Moore, you noted that the EPA published its pesticides and ground water strategy last December, why did the agency decide not to develop specific procedures for addressing pesticide contamination on a site-specific basis?

Mr. MOORE. Well, Senator, I think the major problem with coming up with a national approach to pesticide registration on a site-specific basis, on an issue such as this, given the extreme diversity of soil types, ground-water structure below that soil, variability of pesticides as to when they are applied, how they are applied, the rate, coupled with the variability of season, temperature, for all of those reasons we felt it was almost impossible to come up with a site-specific approach at a national level, and that really is the basis of our strong recommendation. You have to get decisionmaking on issues like this closer to where the issue is. That in turn comes up to our feeling that there has to be, there must be a strong state presence, just to get it closer to the area.

Senator BURDICK. How many States currently have ground-water management programs? Have any States developed specific procedures for addressing site-specific pesticide contamination of ground water?

Mr. MOORE. Well, I don't have the exact number. I would be glad to provide that for the record. Some States have developed site-specific responses. I would say those responses are primarily after-the-fact type of circumstances. The response of the State of New York to an Aldicarb contamination a number of years ago obviously was an after-the-fact type of response.

Florida recently became very active in trying to develop and manage a pesticide-in-ground-water program, attempting to focus again on the EDB concerns that resulted in contamination of some of their ground waters, but their approach is also very strongly oriented toward a prevention, as well. There are a number of other states that have also tried to develop a comprehensive approach. Wisconsin is another state that comes to mind, the State of California being a third.

[The following information was supplied for the record:]

RESPONSE TO SENATOR BURDICK'S QUESTIONS

(1) How many States currently have ground water management programs?

(2) Have any States developed specific procedures for addressing site-specific pesticide contamination of ground water?

(1) According to the February 1988 GAO final report: "Groundwater Quality: State Activities To Guard Against Contaminants," forty-five states reported "moderate" to "very great" activity in the development of groundwater policy and protection strategies. GAO surveyed 57 states and U.S. territories, collectively, "states".

(2) According to the same report mentioned above, twenty-one states reported moderate to very great activity in developing programs to protect ground water from agricultural contaminants—pesticides and fertilizers, while 30 more reported little or some activity. According to groundwater survey results published in 1987 by the Interstate Conference on Water Policy, 36 of the 48 states who responded to the survey reported that they had legislation that addressed pesticide use and 39 reported assumption of FIFRA.

Senator BURDICK. Senator Stafford?

Senator STAFFORD. Thank you, Mr. Chairman.

First of all, Dr. Moore, I read your statement, and I want to give you today's Calvin Coolidge award for brevity, in view of the length of the statement.

As I understand the existing law, in case of liability in connection with the application of pesticides, the farmer who is applying the pesticide, under current law might be liable. I don't know that that has ever been tested, but that would be my impression. Would you disagree with that?

Mr. MOORE. I think the sense on the part of people more expert than I is that indeed there is some liability associated with the person who applied the material.

Senator STAFFORD. So, as I read S. 1516, the Agriculture Committee's bill which eliminates the farmer from liability, that really leaves nobody liable if indeed damages flow from the improper use of a pesticide or the use of an improper pesticide, in either case. Would you agree with me on that?

Mr. MOORE. I think that is generally true as it relates to a Federal statute. There have been some State initiatives. The State of Connecticut comes to mind, where they did impose requirements for alternate water supplies on the people who owned the land on which pesticide uses led to ground-water contamination.

Senator STAFFORD. Whatever the law may be or might become under S. 1516, it seems to me that the American agricultural community really are the victims of their own activities in applying pesticides because it is their ground water they drink that is liable to be contaminated, and that concerns me. If you know of any instances where there has been a response of either a State or any other government or any legal activity in connection with liability and pesticides, could you make that available to us for the record?

Mr. MOORE. Yes, sir.

Senator STAFFORD. All right. Thank you.

Thank you, Mr. Chairman.

[The information requested follows:]

RESPONSE TO SENATOR STAFFORD

Do you know of any instances where there has been a response of either a state or any other Government of any legal activity in connection with liability and pesticides; could you make that available to us?

For a few States, their laws or regulations could possibly be interpreted in a way that would hold a pesticide user liable for ground water contamination even if the product was used according to its registration. For example, Title 3, Part II, Chapter 12, Subchapter VII, Section 1233(e) of the State of Delaware Code reads: "Nothing in this chapter shall be construed to relieve any person from liability for any damage to the person or lands of another caused by the use of pesticides even though such use conforms to the rules and regulations of the Department." The State of Washington also has a provision of its Pesticide Application Act that may be similarly interpreted. A number of other states, such as Maine, have laws that may hold farmers liable for mis-application of pesticides.

Some states—Rhode Island, for example—collect pesticide registration or license fees, pesticide dealer fees, and other revenue that make up pesticide relief funds. These funds can be used for, among other things, replacing contaminated wells with new wells when feasible or developing or supplying alternative drinking water.

Senator BURDICK. Are you saying that the farmer is liable merely because he applies material to the land, consistent with what the label provides?

Mr. MOORE. Well, Mr. Chairman, as Senator Stafford and I alluded to, I am not sure how severely that area has been tested in the courts, but it is the view of some people that indeed there is a liability, under strict liability type of requirements, for anybody who is involved in the process, and that would include the user.

Senator STAFFORD. If the chairman would allow me, the way I phrased that, I said if the farmer made an improper application of a pesticide or made an application of an improper pesticide——

Senator BURDICK. I see.

Senator STAFFORD [continuing]. That he would be really the victim of his own actions if liability occurred under existing law, and that the Agriculture Committee's bill, as I understand it, would eliminate the farmer from liability, and then there would be nobody liable if indeed an improper application occurred or an application of an improper pesticide occurred. That's what I was driving at, Mr. Chairman.

Senator BURDICK. We've got that straightened out, now. I was a little bit alarmed, because if a farmer applies that material to the soil according to instructions on the label, I don't see how he can be made liable. That was my point. Do you know of any decisions where he was?

Mr. MOORE. I know of no decisions relevant to that, Mr. Chairman.

Senator STAFFORD. Well, if I could add one further thought, Mr. Chairman, I think that if a farmer followed the directions and applied a pesticide which he knew or should have known was an improper pesticide, that then he might very well be liable.

Senator BURDICK. Well, if he knew it, yes, but if he just took the manufacturer's word for it or the distributor's word for it, he wouldn't have known anything more than is stated on the label. Are we in agreement now?

Senator STAFFORD. Yes. I think the basic problem is that the agricultural community, as I said, could be the victims of their own activities, and the view of this Senator is that maybe somebody else ought to be responsible.

Senator BURDICK. Senator Durenberger?

Senator DURENBERGER. Thank you, Mr. Chairman.

If I have time, I am going to ask a series of "Sven and Ole" questions a little later to try to clarify that liability issue, but first, Jack, I am going to try to ask brief questions, and they are kind of along the line of the philosophic approach of the agency.

I think it was February 25th when I introduced my comprehensive ground water bill. You also introduced your strategy, and one of the big differences is nondegradation, which is my general approach, and yours, which is differential protection. I am just going to comment briefly on why I think there are problems with differential protection, which is your view, and then ask you to tell me why a guy who is as smart as you are really has confidence in that approach, and I mean that seriously.

I try to boil these down to three principal objections, all of which deal with the fact that it just seems to require too much information. You have to know a lot of information to decide what level of contamination is safe or not inconsistent with the planned use of the ground water resource, and you know how difficult that has been for the agency to do over the years, so you have to know something about the behavior of the chemical, and we have the Aldecarb example and others that show us how difficult that is.

Then in your Calvin Coolidge award speech you testified to the difficulties in knowing, in a site-specific sense, about the behavior of ground water. Even if you knew a lot about that sort of thing, there are some totally unknowable things that we can't deal with, which is what does the next generation want to use the resource for?

So it is for those basic reasons that I have difficulty with the differential protection approach, and have suggested that we use the best of what we already have—in other words, use the best available control technology, use best management practices, use the best of this generation as criteria, rather than trying to project into a lot of this unknowable. What is your reaction to that?

Mr. MOORE. Senator, I think it is quite clear that we both subscribe to the main approach to pesticides and ground water, and that is one of prevention, and I think we both subscribe to trying to bring the best technology to bear as we know it today. I guess it reflects our belief—and this may be where we diverge a little bit—that our shortcomings notwithstanding, we do think that one can come up with approaches in a number of instances which would allow one to attempt to manage, and manage successfully, something that would be workable, rather than say that everything must be based on a pure and pristine approach, which I don't think is going to work.

Senator DURENBERGER. Well, I won't try to belabor either of these points because we have a relatively short amount of time, but one of the differences—and this sort of relates to the same subject—one of the differences between S. 1516 and S. 1419 is in the definition of the resource. We have a rather broad definition of the resource. S. 1516 has a rather narrow definition. Essentially it is current drinking water and water that may potentially be drinking water.

I thought there were probably three good reasons for a broad definition, and again it is the complexity of the resource argument, all the hydrogeologic investigation you have to go through. The second was the fact that there are other uses for water than simply drinking water. There is livestock watering and irrigation and industrial use and all that sort of thing.

Third is the issue of future uses. What we do to the ground water resource is, as I think we would agree, to a large degree permanent. It sticks around for a whale of a long time. My impression is that there is a tendency in your shop at EPA to maybe ignore the characteristics of ground water as a natural resource and to consider it more as a medium for human exposure to pollution, and I am wondering if you can help us understand how the intrinsic value and the future value of an aquifer, whether it is being currently used or not, how is that being incorporated into your decisions down at the EPA?

Mr. MOORE. Senator, what we would recommend, in regard to the use and value of an aquifer, we feel that it should be a factor considered in up-front-in decisionmaking but we would also suggest that in such determinations there is a role for the State to do. We would like to task a State to make that determination and allow it to do it, rather than there being a single, uniform Federal standard. Let the States do it. That is prospective. That is not what necessarily is happening right now, except possible in a few specific circumstances.

I think an area of fundamental difference that we may have is that in looking at ground water, as one might want to classify ground water, we think that you can allow differentiation. We also think from a practical standpoint that you, whether you like it or not, you have to allow for some possible controlled degree of degradation, if degradation is defined as the possible penetration or presence of chemical X into that water at some low level, but it should be controlled and it should be controlled certainly before it ever got up to, say, the level of an MCL or something of that sort. We try to take into account the level of the contamination, the consequence of that contamination, and as to whether or not it can be controlled or not controlled.

Senator DURENBERGER. Well, I wonder if you wouldn't think about that question a little bit more, because I am going to be left bothered by the notion that somehow—I mean, we could wipe out the Department of the Interior, the National Park Service, and a whole lot of that if we had taken what I understand to be your view about devolving responsibility for these decisions down to the State level. I mean, there are a lot of parks in this country that wouldn't be around and a lot of other natural resource preservation wouldn't be around if we decided we were going to devolve that kind of responsibility to future generations. Not that some States wouldn't do it, but I am trying to deal here with how do we make the decisions that are going to affect generations to come, and how is it inside your process that you balance today's equities and some of tomorrow's realities?

One other question, and then I will yield to my colleagues, and if we have time I would like to come back for a final question. When we put S. 1419 together, we worked with your staff and got the impression there were three things that EPA wanted to see in there, and I am just going to mention two of those and see where you are at today. One is an explicit State role in protecting ground water, and so we put a State program in there, and I would like to know whether you still consider that an advantage.

Second, you asked for authority to set a ground water residue guidance level for a pesticide that is a carcinogen, at a 1 in 1 million risk level rather than at the MCLG, and I would like you to tell us whether you still believe that 1 in 1 million is a good point of departure for limits on the concentration of cancer-causing substances?

Mr. **Moore**. Well, Senator, on both of those points we certainly think that one needs a point of reference for anybody's prevention approach, and we propose that indeed the point of reference, if it exists, would be the MCL. In a case where an MCL does not exist, we would then come up with a determination, based on the information that was available, as to what level should be used as the reference point. For carcinogen, we would come up with a level that would equate to a 1 in 1 million risk, that is, no greater than a 1 in 1 million risk if one were to drink that water for a lifetime. So a GRGL or a reference point or whatever you want to call it, we think is needed, and that point of reference, if we have to create it de novo, should be at a risk level of 1 in 1 million for chemicals that may have carcinogenic potential.

As it relates to the State role, we feel that a strong State role is integral to a successful plan. I jotted down this morning three elements that I think are critical as it relates to State participation in a very meaningful way. One, we think that the State should have the responsibility of classifying its ground water, making some of these value judgments that are associated with its use and value. Two, it should come up with a tailored plan for a specific pesticide, as to how it might be able to utilize it or prevent its use in certain areas to achieve the preventive goal; and the third area, I think it is primarily a State role to be involved in the site-specific response type of activity where an unfortunate occurrence has come to light.

Senator **Durenberger**. Thank you, Mr. Chairman.

Senator **Burdick**. Senator Breaux?

Senator **Breaux**. Thank you, Mr. Chairman.

Thank you, Dr. Moore, for being with us. Following up on what Senator Durenberger was talking about with regard to the standards that we are trying to set, it is my understanding that the agriculture bill takes the maximum contaminant level and sets that as an enforceable standard, whereas the Durenberger Environment and Public Works bill takes the maximum contaminant goal—which under the Safe Drinking Water Act I understand is a goal, it is not enforceable, it is something that we hope to reach—and takes that goal and makes it an enforceable standard in this legislation. What is your objection to that?

Mr. **Moore**. Well, Senator, you are correct. Our interpretation of S. 1516 is that it uses the MCL as the point of reference, should it exist.

Senator **Breaux**. Which under the Safe Drinking Water Act is a goal that we hope to reach, is that correct?

Mr. **Moore**. No. Maximum contaminant level would be an enforceable requirement.

Senator **Breaux**. Oh, I'm sorry. Which is enforceable under the Safe Drinking Water Act.

Mr. **Moore**. Yes. The point of departure is that if it is a chemical that data suggests may have carcinogenic potential to people who would consume it in drinking water, that 1419 would say in that instance you would use the MCLG, the goal, and the MCLG by policy is set at zero, so it becomes a nondegradation standard. We think that is unattainable in the real world.

Senator **Breaux**. The recommendation of EPA is that the States should, number one, be involved in setting the areas where these goals or contaminant levels are to be applied, not the Federal Government. Is it not important to have some type of a national standard out there with regard to what areas we are going to protect for the purposes of drinking water? If you have 50 States perhaps doing it 50 different ways, is that not a totally unworkable situation?

Mr. **Moore**. I hope I didn't convey the impression that, in suggesting a strong State role, that one inferred that there was no Federal role and it became just 50 different approaches. We would see a Federal role as establishing the base of what must be accomplished in any approach or any management plan on the part of any State. We would, however, leave to a State which is developing a plan, great latitude as to what specific measures or combination of measures it would try to employ in order to meet that minimum base or goal that would be established federally. States obviously also could be more stringent, which is permissible under FIFRA, should they so desire.

Senator **Breaux**. Are you comparing this to the situation with regard to RCRA, the Resource Conservation and Recovery Act, where we set minimum standards? States can go further than that. They can make them stricter if they want, but there is a minimum Federal base that the Federal Government establishes with regard to handling of hazardous wastes under RCRA. Are you saying that what we do should be patterned after that?

Mr. **Moore**. I am going to avoid your question a little bit, Senator, because of my unease on RCRA, rather than trying to not answer your question. I don't think we are talking about being necessarily as rigid as some of the things that might be associated with RCRA, as I imperfectly understand it, but what we are saying is that, for example, the agency or the Federal Government would identify chemicals which pose problems or potentially pose problems for ground water contamination.

It would identify those areas across the country that it thinks are particularly vulnerable if that pesticide were used. It would also identify in this point of reference, MCL or GRGL or whatever one wants to call it, should one not exist, and then would propose that we would not, in the granting of our national registration for that pesticide, grant it in those States where they had highly vulnerable areas, unless a State elected to come up with a plan that had certain elements in it that they felt, should it be implemented properly, would manage to make sure we didn't end up with unwanted ground water contamination. Absent that plan, we would not register it in that State.

Senator **Breaux**. So what you are saying is that in setting those standards, you are indeed setting a standard and not just a goal that you would hope that the States would reach, but a set of minimum requirements that, in the absence of a State plan having those minimum requirements, EPA would not sign off on the use of the pesticide under those circumstances?

Mr. MOORE. Right. There still is some discussion as to whether we would review each specific State plan for each specific chemical, or whether we would possibly adopt the attitude that, "Hey, here are the critical elements that a State must have together in order to come up with a credible State plan, irrespective of what the chemical may be." Assuming that they could do that, we would keep our level of review at identifying that you have that critical mass and that you are continuing to maintain it, as opposed to getting into the role of second-guessing each and every paragraph in a chemical-specific State plan.

That issue is still flexible. I think you can predict how States would like it. You can predict how some of my employees might like it. But we still would come up with this core of activity that must be considered and objectives that must be met in a State plan being devised and implemented.

Senator BREAUX. Let me ask one final question: The Agriculture Committee bill has provisions to exempt farmers who properly use a pesticide according to the requirements of the labeling laws, et cetera, upon a showing that they have properly used the product as per the instructions. My question to you is, are you satisfied with the showing that is required under that bill in order to be exempted? If in fact a farmer meets that criteria and damage is done to an underground water system, under those provisions who, in your opinion, would be responsible for damages or cleanup?

Mr. MOORE. The whole issue of end user or agricultural producer liability is one that we have tried to maintain a neutrality on, as to whether it should or should not be in a bill. If indeed an end user was exempted, due to language of one sort or another, because of proper application, I think the question still comes back to where we were with Senators Burdick and Stafford a few minutes ago. It is uncharted waters.

Senator BREAUX. Well, that is my question, not as to who should be responsible if the farmer is exempted, but under a reading of the Agriculture Committee legislation, who does EPA feel would in fact be liable, if anyone?

Mr. MOORE. I am not sure it's clear as to who would be liable.

Senator BREAUX. Is there a possibility, then, that no one would be liable if the end user were exempted because of proper application and damage was done?

Mr. MOORE. I think it is conceivable. I assume that one might look to other people, if one was looking for somebody to be liable. I am sure that somebody would try to test whether or not a registrant might not be held liable, but as to whether or not they would be legally successful or not, I don't know.

Senator BREAUX. Thank you, Mr. Chairman.

Senator STAFFORD. If the Senator would yield, I was going to say it might leave the lawyers suing each other.

Senator BREAUX. Heaven forbid.

Senator BURDICK. Senator Durenberger?

Senator DURENBERGER. Yes, Mr. Chairman. I was going to save this question for Jack Early because it was actually his testimony a couple of years ago that got into this, but since Jack Moore and my colleague John have introduced the subject of MCL's and MCLG's and all the rest of that sort of thing, I thought it might be helpful if we kind of walked through this.

Jack, you can help us understand all of this a little bit better, because what we are doing—this chart is from the ACA testimony on July 30, 1987—and at that time they said that S. 1419 in effect was not a very good bill and "not a credit to the Senate. It will hurt agriculture." I don't think that is quite their position today, but I think in large part there is some confusion about how to interpret the Safe Drinking Water Act and some of the rest of these things, so if I can, I would like to take a couple of minutes and walk through this.

What the chart here tries to do is, it shows the working of the Safe Drinking Water Act and how the structure of the act would affect the establishment of a ground water residue guidance level under S. 1419, and then the alternative program in S. 1516. The purpose of the chart was to show that S. 1419 would drive us to an unnecessary extreme, as it would set the ground water residue guidance level at a very low concentration, much lower than would be necessary to protect public health.

If this chart were an accurate representation of the Safe Drinking Water Act, I would agree with the thesis and S. 1419 would be too extreme, but it is not. In fact, the chart bears no relation, really, to the way that the Safe Drinking Water Act actually works, and I think it describes circumstances for no contaminant that we have ever regulated under law, because what has happened is that it seems that that chart combined the regulatory regime for two different classes of contaminants, carcinogens and noncarcinogens, and this is where I would like to do some exploration.

So if we pull the chart apart and deal first with noncarcinogens, we put the line representing the adverse effects level at the top of the chart. Exposure to any concentration of the pesticide in drinking water above that level—that is the blue level on the chart—would presumably produce an adverse effect. Under that level, the drinking water law generally provides a margin of safety.

Then there is the maximum contaminant level goal, the MCLG, and that is the first standard established under the drinking water program which reflects our "no adverse effect on human health." That is the first step. The second step under the drinking water law as I understand it, is for EPA to set the MCL, the maximum contaminant level, and it sets it as close to the MCLG as is possible, taking costs into consideration. The costs considered include the cost of treating a water supply that has been contaminated—in effect, cleanup costs.

For the noncarcinogens, the costs of treatment really have never been a significant regulatory problem. Costs have never, to my knowledge, prevented EPA from setting the MCL precisely at the same level as the MCLG, which is just as close as you can come. So the suggestion here at least in this chart is that for noncarcinogens, the two standards have always been the same. S. 1516 now comes along and uses an MCL as a point of departure, as we have just learned, and S. 1419 uses the MCLG as a point of departure, but for noncarcinogens it doesn't make any difference. You get to the same point regardless of which approach you take.

Is that sort of generally the way you understand it?

Mr. Moore. Yes. In the main, if you are dealing with anything except a carcinogen, the distinction between MCL and MCLG essentially is nonexistent. I'm sure there might be an exception someday, but——

Senator Durenberger. Yes. Now let's go to the carcinogens, and again let me begin with the adverse effect line. This time it's not at the top of the chart, it's at the bottom and it's at zero concentration, as you indicated, which reflects—as I understand it—the existing scientific consensus which has been the basis of Federal Government policy ever since Dwight Eisenhower was running this country: There is no safe level of exposure to a carcinogen. For carcinogens, all concentrations may be harmful to public health, so that any time we are in the red area, we are going to be contributing in some way to an increase in the risk of cancer.

So for carcinogens, and again reflecting what the current law in the Safe Drinking Water Act is, the maximum contaminant level goal is zero. There is no cost entering this picture. Unlike the situation for noncarcinogens where the MCL is always equal to the MCLG, for carcinogens there always in effect has to be or almost always is a gap between the two. The MCLG is at zero and the MCL is at some higher level.

Now I want to get a little more specific and use an example. EPA has a problem with a contaminant which is not a pesticide. It is lead. You are in the process of revising the standard for lead, which is currently 50 parts per billion. That is because we have new data on the effects of lead on learning in children which suggest that a much lower level is necessary to protect public health.

So EPA, as I understand it, is considering an MCLG of zero because lead is classified as a Class B or a weak carcinogen, but they may not set the MCL at zero because you have to take cost into consideration, and there is going to be a big cost to a lot of cities in America to meet a zero standard, and that cost is very simply the cost of removing lead pipes in the distribution system which causes the lead contamination. The water comes in ostensibly clean but it picks up lead from the pipes, pipes that were put in the ground decades ago, and it is going to cost billions of dollars to remove the lead, and the removal cost is something EPA has to take into account in setting the MCL. It will cost the MCL to be much higher than the MCLG.

What I have tried to do with that example is to illustrate why some of us think it is ill-advised to use an MCL in a ground water protection program, because the cost of removing the lead from the pipe really has nothing to do with the need to protect the ground water supply. It seems to me a little irrelevant to any ground water consideration because the lead gets in the pipes after the theoretically pure ground water gets pumped from the aquifer.

But if we use an MCL, if that is what we put into the law, then we are going to be saying that it is okay to contaminate the ground water. Again, nothing to do with the pipes, but we are going to say it is okay for somebody to take pure ground water and contaminate it up to some much higher level because we have been forced by the law to incorporate these costs.

Now I am going to conclude this by just the final line on the chart for carcinogens. That is the 1 in 1 million risk level. For most carcinogens, it is possible to identify a concentration that will reduce risk to a negligible level. Here we have defined that negligible risk level as a concentration which would produce no more than 1 in 1 million, and again we picked that up from a National Academy of Sciences study on pesticide residue in food, where they recommended the food and drug laws be modified to reflect this negligible risk standard. It seemed to me, at least, that if it is okay for food, if that is an appropriate risk for food, it should be for drinking water.

Under S. 1419, EPA can use some non-zero ground water residue guidance level for a carcinogen, so long as the standard would reduce risk to a negligible level. We have tried to establish this as an upper bound on how high the risks can go, because some of the current MCL's have risks that are in the hundreds of times greater than 1 in 1 million.

So it seems to me that there is kind of an unfortunate pressure currently in the system that is being put on EPA to set higher MCL's than can be achieved using current treatment technology. There is always this kind of upward pressure that is incorporated into the theory of the MCL, so what we are trying to do in S. 1419 is to cap that pressure on you and to cap it at 1 in 1 million. So S. 1516 lets the GRGL go to whatever level EPA chooses for the MCL and for whatever reason; S. 1419 says we are going to accept some risk from cancer-causing pesticides in our drinking water, but no more than one additional cancer death per million, and it seems to me that is kind of a reasonable standard.

I apologize, Mr. Chairman, for taking some extra time with this, but over the last couple of years this always seems to have been a problem, and I know none of us really understand all this stuff as well as Jack does.

I wonder if you wouldn't react to your dialogue here with John Breaux, in this context a little bit?

Mr. MOORE. Well, Senator, as you pointed out earlier in your comments, if one accepts an MCLG for a carcinogen, the level is zero by definition, and so therefore there is no risk. It is obviously safe. I think what you are suggesting here in your acceptance under S. 1419 of a 1 in 1 million risk, I think you have accommodated to reality, and that is the ability of chemists in this country are such that they can measure down—someday they will be down to one molecule—and so the concept of zero as we knew it 20 years ago doesn't exist because our chemists have shattered our world, so to speak.

I think the other thing that you have done is that you have defined "safe" as something other than no risk, as the Academy report did in that Delaney study, and that is saying that from a practical standpoint there has to be a level, some low level below which, for practical concerns, quit worrying about it. It is obviously going to be greater than zero, and you have suggested that that number might equate for carcinogens to that 1 in 1 million risk.

So intellectually we are together on that point, and I think the only thing that is subject to additional discussion on the part of you or the agency or anybody else, is that if you are going to set something other than zero, where is the appropriate place to set it? You are suggesting that 1 in 1 million should always be the upper limit, in fact knowing that with some MCL's that have already been set, the estimate is something greater than 1 in 1 million, and you are saying as a reference point for ground water contamination it might be inappropriate. But conceptually I think you have done the right thing, and that is, you have accepted that it can't be zero.

Senator **Durenberger**. As practical matter, would you suggest—and maybe Jack Early can talk about this also, when he gets here—that there may not be that sort of irreconcilable difference between the folks like John on the Agriculture Committee and the folks like John on this committee, that there might be a way here for us to come together on this issue? Are we sort of diametrically opposed?

Mr. **Moore**. I think there is always room for discussion on the issue, as to whether it should be that reference point of 1 in 1 million or whether it should be the MCL, if one exists. We, in essence, are saying that should an MCL not exist, we would have to set that reference level, and we would set it for a carcinogen at 1 in 1 million. The other thing we have said, as a practicality, if an MCL does exist, we would use the MCL. Sometimes that MCL, at least for some chemicals for which MCL's have been established, that MCL for technical reasons or cost reasons or whatever reasons is something greater than 1 in 1 million, but I think that is discussable.

Senator **Burdick**. Any other questions of this witness?

Senator **Breaux**. Let me ask just real quickly, if I may, for noncarcinogens is the MCL and the MCLG essentially pretty much the same?

Mr. **Moore**. Yes, for all practical purposes, identical. I'm sure there might be an example or two where they aren't quite identical, but for all intents and purposes they are the same number.

Senator **Breaux**. Under the Durenberger bill, the standards for noncarcinogens, would they not be higher for rural water supplies than they would be for public water supplies, meaning stricter? Would they not be stricter than we have under the Safe Drinking Water Act, from an enforceability standpoint?

Mr. **Moore**. I'm not sure I am getting your question, Senator.

Senator **Breaux**. As I understand the Durenberger bill, when it takes the goal and sets it as an enforceable standard in this legislation dealing with drinking water throughout the United States, all categories of drinking water, not specifically defined, that in effect would be a higher standard from an enforceable standard than we have under the Safe Drinking Water Act now. Wouldn't that be correct?

Mr. **Moore**. That would be true for carcinogens. I'm not sure it would be true necessarily for noncarcinogens.

Senator **Breaux**. The reason why I ask that question, as I understand it, under the Safe Drinking Water Act the MCLG, is a goal. It is not an enforceable standard for safe drinking water. It is my understanding the Durenberger bill takes that goal and makes it an enforceable standard. Therefore, my question is, is that not a standard for rural water that would be higher than we have under the Safe Drinking Water Act currently?

Mr. MOORE. I don't think so, Senator. For noncarcinogens, I don't think so, only in that instance that I can't think of right now where the two might be different.

Senator BREAUX. Okay. That would be for noncarcinogens?

Mr. MOORE. Yes.

Senator BREAUX. I may need to elaborate more on that because I don't understand it right now, and I don't want to take the committee's time to do that. Thank you.

Senator BURDICK. Well, thank you, doctor.

I will now call the first panel, to be composed of Mr. Cohen, Mr. Combs, Ms. Cook, and Ms. Parker. If possible, I would like to have the witnesses limit their testimony to 5 minutes. All statements will be made a part of the record. We will proceed with Mr. Cohen.

STATEMENT OF STUART Z. COHEN, MANAGER, GROUND WATER PROGRAMS, BIOSPHERICS, INC.

Mr. COHEN. My name is Stuart Cohen. I am the manager of ground water programs for Biospherics, Inc., a laboratory consulting firm in Beltsville, Maryland. Until December, 1986 I was in charge of the ground water team in EPA's Office of Pesticide Programs.

I was asked to speak to you today on what is known about the extent of the problem of pesticides in ground water in the U.S. In a nutshell, the mobile and persistent pesticides which can leach to ground water have been mostly identified; a large number of ground water monitoring studies for some of these have been conducted since 1979, thousands of positives have been identified, but the true extent of the problem is still not known.

This is due to two confounding factors which tend to skew results in opposite directions. On the one hand, most studies have focused on a very limited number of pesticides. This would tend to understate the problem. On the other hand, most sampling designs have been nonstatistical and biased toward areas of high ground water vulnerability and high pesticide use—the areas most likely to be contaminated. This would tend to overstate the problem.

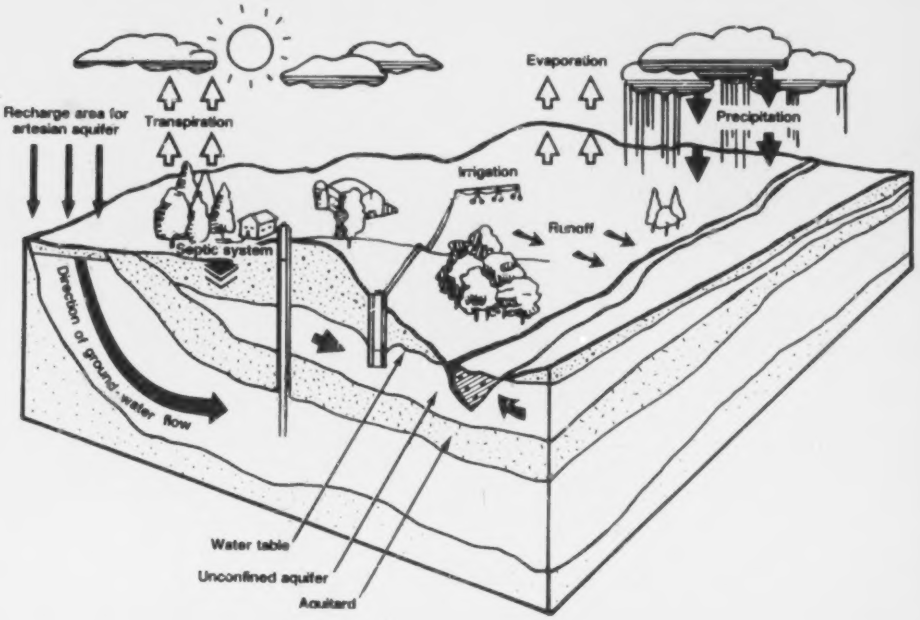
Therefore, in order to estimate better the true extent of the problem, more properly designed ground water studies are needed. These studies should look for multiple pesticide residues and should have a statistical basis, with careful considerations for hydrogeology and pesticide use patterns. EPA's national survey is a significant example of this type of program.

Once the monitoring data base improves, it can be better used for two purposes: one, determine the true extent of the problem; and, two, serve as a check on how well the Nation's regulatory programs are protecting the ground water environment.

Before I provide you with more specific data on the technical slides which follow, I would like to make one comment on funding. I caution you not to pass any new legislation and/or encourage EPA to undertake ambitious programs in this area if you are not prepared to fund the programs adequately. It will only increase the frustration level among the pesticide industry, citizen activists, State officials, and user groups, who uniformly would like to see a strong, competent EPA which is prepared to support the States in program implementation.

Now I would like to show you some more specific information about the extent of the problem of pesticides in ground water.

I would like to first begin by giving you a 45-second short course in hydrogeology. This slide is a cross-section of the earth which would be typical for the eastern United States and many areas of the western United States. It shows the water cycle, the hydrologic cycle. Rainfall comes to the earth. Some of it runs off. Some of it evaporates, and the rest recharges to ground water.


Recharge area for artesian aquifer
Transpiration
Evaporation
Precipitation
Irrigation
Runoff
Septic system
Direction of ground-water flow
Water table
Unconfined aquifer
Aquitard

Mr. COHEN. The important points to take home from this slide are, one, the surface water system and the ground water system are interconnected. There is increasing focus on the possibility that surface water contamination can be, in fact, adding to ground water contamination.

Number two, the underground environment is complex. There is often more than one aquifer system. In sampling a well, you have to know which aquifer it is in. Public water supply wells are usually in the deeper aquifers, which are usually cleaner, and the private wells are usually in the surficial aquifers, which are more vulnerable to contamination.

Finally, there is a lot of degradation that goes on in the top foot of soil and the root zone.

The extent of occurrence: The following U.S. map slide is based on the approximately 11,500 positives from 1979 to 1986. Reasonable attempts were made to confirm that the following three criteria apply:

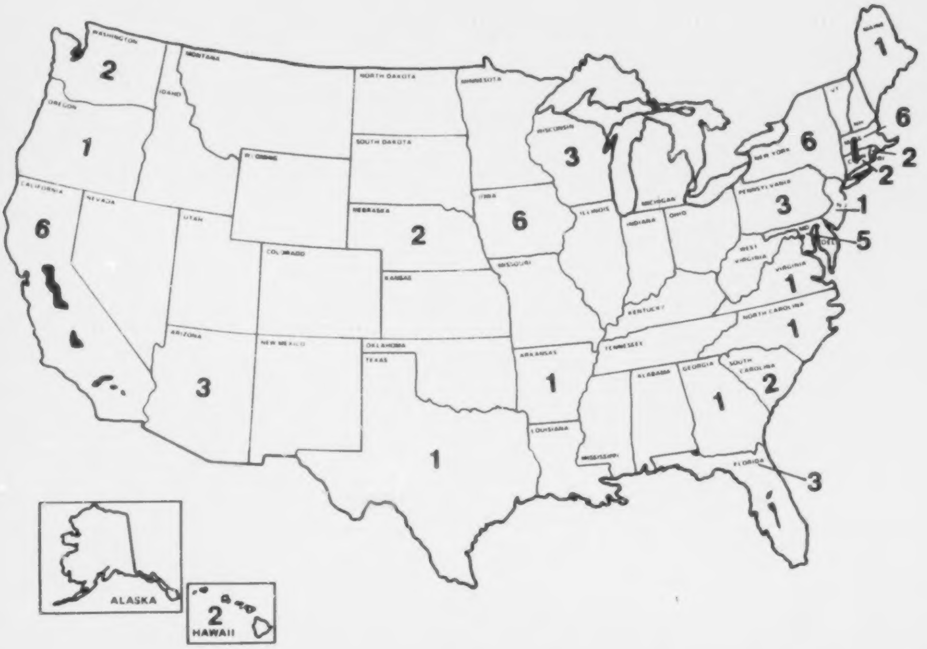
The identity of the chemical was confirmed. This is important. Chemicals have been misconfirmed in the past, misidentified, and that has caused a lot of problems.

It was due to a nonpoint source. Increasingly we are seeing, with herbicide use, point source problems. Mixing loading, formulation problems, are causing ground water contamination.

And the pesticide has some leaching properties. It is at least marginally mobile and persistent.

This slide depicts the number of pesticides found in ground water as a result of normal use, by State. These data are current as of about a year ago. Minnesota, as a result of a report received this year, a number would be affixed to there would be over 10 herbicides found in ground water there as a result of normal use.

Numbers of pesticides found in ground water as a result of normal use, by state.



Mr. Cohen. If you add up these numbers, there would be approximately 21 different pesticides in 23 different States, found in ground water as a result of normal use. The shaded areas, the red areas in the San Joaquin Valley of California and Riverside County, the Central Ridge area of Florida and the Panhandle, the Connecticut River Valley and Suffolk County in Long Island, represent areas of generalized contamination by one or more pesticides, and I define that as detections exceeding some sort of level of health concern.

There are approximately 2,400 wells with DBCP in California, approximately 1,200 wells with DDB in Florida, over 2,000 wells with Aldicarb in Suffolk County, and approximately 400 wells with EDB and more with other nematicides in the Connecticut River Valley. I would like to point out that all of these pesticides, either the pesticides in toto or the specific use patterns, have been stopped either by EPA or the registrants.

Concluding, these results show approximately 45,000 wells sampled for nonpoint sources of 13 million wells nationwide. That is a third of a percent. Approximately 11,500 wells have been positive for at least one pesticide, and approximately 5,500 wells have been positive at concentrations exceeding levels of concern.

I thank you for your time.

Senator Stafford [presiding]. Mr. Combs, would you be willing to go next, please?

Mr. Combs. Yes, sir.

STATEMENT OF JAMES COMBS, ADMINISTRATOR, COORDINATION AND INFORMATION DIVISION, IOWA DEPARTMENT OF NATURAL RESOURCES

Mr. Combs. Good morning. My name is Jim Combs, and I am with the Iowa Department of Natural Resources. I appreciate this opportunity to share with you Iowa's experiences and perspectives on ground water protection as it relates to pesticides. While my comments today will focus on pesticides in ground water because that is the focus of this hearing, I think it important to point out to you that in Iowa pesticides are treated as a subset of a group of compounds referred to as synthetic organic compounds.

Over the last 7 years, the combined efforts of resource agencies in Iowa have shown that many of the commonly used pesticides are leaching through the soil and into ground water. Over 1000 samples have been collected in Iowa and nearly 40 percent have been found to have low concentrations of one or more pesticides present. In addition, investigations conducted by the Iowa Department of Natural Resources into the ability of conventional treatment systems to remove or reduce the concentrations of these pesticides have shown that public water supplies are ill-equipped to deal with these chemicals.

Ground water provides the drinking water for 65 percent of Iowa's population. Monitoring of public drinking water supplies in Iowa indicates that over one-quarter of the State's population is exposed at times to low concentrations of one or more pesticides in the water they drink. The importance of this resource and public awareness of its contamination have led to strong support for a serious effort to further prevent water quality problems in Iowa. The level of this support is consistent between rural and urban populations.

As part of my written testimony, I have listed documents that provide a more detailed summary of research and monitoring programs conducted in Iowa. With the permission of the chairman, I would like to provide the committee with a copy of these reports and enter them into the record.

The State of Iowa has taken a unique approach to address this serious problem. Rather than implementing a traditional regulatory program, Iowa's ground water protection law focuses on preventing contamination in the first place. The Iowa Ground Water Protection Act gives all Iowans the right to safe and potable water, and states that all Iowans have the duty to conduct their activities so as to prevent ground water contamination.

Historically, environmental protection efforts have focused on getting society to accept pollution. Regulators have placed their emphasis on identifying a safe level of pollution, and allowed the resource to be degraded to that level. While this approach has been used to control point source pollution discharges, the State of Iowa does not believe it would be a particularly efficient or effective method to protect ground water resources. It relies on numbers and permits to ensure compliance with those numbers. Frankly, we don't know how to issue permits to 137,000 farms and 2.8 million people that will tell them how much each of them can contaminate ground water, much less how to enforce such a system.

Ambient ground water is not the same as treated drinking water. Iowa's preventive approach does not classify aquifers according to present or anticipated use, nor does it require standards that define an acceptable level of ground water contamination. Instead, Iowa is focusing on positive actions—research, demonstration, monitoring, and education—actions designed to discover and show its citizens how they can conduct their activities in a way that prevents ground water contamination.

The law requires research into alternative agricultural practices, health impacts of contamination, and alternative waste management practices. Iowa's program also includes information dissemination and educational efforts designed to tell Iowans about the impact of their actions and tell them how to minimize those impacts. Iowa's program is unique, in that the cost of protection and cleanup efforts is assigned to the polluter, not the user of the resource.

Approximately $11 million is raised each year through fees on pesticides, fertilizers, solid waste, household hazardous materials, and underground storage tanks. No potential source of pollution is exempted. Farmers pay a portion of the cost through fees on agricultural chemicals. The actual amount, however, is minimal—less than $20 per year for the average farm. This compares to landfill fees of $60 per year, water and sewer bills of $200 per year, and thousands paid by Iowa industry to install and operate pollution control equipment. At the same time, the economic viability of farmers is not threatened. They are still able to produce, and they are not prohibited from using fertilizers and pesticides.

Public policy at all levels must focus on helping people change their practices so that there is less environmental contamination as a result. We must focus the research and outreach efforts of our land grant universities in this direction. We must make sure that government sets an example and send a consistent message to all.

Ground water protection necessitates a preventive approach. Classifying aquifers and adopting standards does not prevent contamination. We know so little about aquifer systems and pollutant movement that to write off some aquifers is exceedingly dangerous, and could have adverse impacts on the quality of the very ground water we are intending to protect.

The expenditure of large sums of money to develop and defend standards and to ensure compliance is wasteful. The same money could be spent to develop ways to prevent or avoid contamination, and thus eliminate the need for standards. If Federal standards are adopted, however, action levels should be included to mandate corrective action at very low levels of contamination, long before the standard is reached. Any Federal program should allow State flexibility in implementation. States that already have protection efforts underway should be given latitude in implementing Federal programs.

Iowa has decided to act, and that action was based on the belief that ground water is a precious resource to the State. Quality ground water is essential to a quality life, and is the basis of a clean environment. Clean ground water is essential to maintaining Iowa and this Nation as desirable places to live. A clean environment benefits everyone, and all sectors of society should be held accountable in its protection.

The costs of protection should be assigned to potential polluting activities, based on the risk those activities pose to the environment. In Iowa, our program is comprehensive and agriculture is not excluded. However, the cost is not so great as to force anyone out of business. The cost to the average farmer in Iowa is less than $20 per year.

This Nation has a vast and precious resource in its ground water that must be protected and utilized wisely.

Thank you for your time this morning.

Senator **Burdick**. Thank you, Mr. Combs.

We have a little bit of a problem. We have a vote on in the Senate. We will be in recess for 10 minutes.

[Recess taken.]

Senator **Burdick**. We will now hear from Ms. Cook.

STATEMENT OF CHERYL COOK, NATIONAL FARMERS UNION

Ms. **Cook**. Thank you, Mr. Chairman, and good morning. I am Cheryl Cook, with the National Farmers Union. I am also testifying this morning on behalf of the American Agriculture Movement and the League of Rural Voters.

When I travel around and talk to farmers about pesticides and FIFRA, the same questions keep coming up, that prove to me that farmers are concerned about the environmental impact of what they do, and they are confused about the number of different agencies and different rules that they have to follow, but most of all I am convinced that farmers do want to do the right thing, if someone would just tell them what the right thing is.

That is why we believe that we need a strong FIFRA bill this year. The re-registration process will provide information that everyone needs. It is critical and it is our first priority, but we want S. 1516 to be a good bill, too, and we believe there are several areas in which this committee can improve on what the Agriculture Committee has done. The two areas that I will touch on are ground water protection and the liability of farmers who apply pesticides in a reasonable manner.

In setting the ground water residue guidance level, I have to start by admitting to you, Mr. Chairman, that I don't know if a zero risk standard will ever be attainable. I don't know what the reasonable level is. I am not a scientist. I don't like slides, and the best answer I can give you is, "I don't know." But what I do know is that however we choose to define contamination, if we wait until we reach that point to require a site-specific response, to require to start cleaning that up, we have waited too long.

We support the provisions in S. 1419 for monitoring and for site-specific responses because they do protect ground water from becoming contaminated in the first place. We also support triggering label changes and other registration amendments as soon as practicable, because farmers who have updated information quickly can adjust their use patterns and can possibly keep a product on the market a little longer, or at least long enough to get a better alternative, a safer alternative.

We support the provision of S. 1419 that allows the administrator to delay implementation of those registration changes for up to 5 years if the health and environmental effects of the product alternatives are worse. Let's face it, we want to use common sense here, and 5 years seems like a reasonable amount of time for industry to either provide better information or a better product.

Now beyond S. 1419 and S. 1516, we have some other ground water concerns I would just touch on briefly. First of all, we think there is probably an appropriate role in all of this somewhere for the U.S. Department of Agriculture, and we are hopeful that we can plug them in in various information-gathering and disseminating roles. Farmers are used to working with the Extension Service, with the Soil Conservation Service, with their conservation districts. We are hoping that there is some way that we can plug those people into the process.

Secondly, we would encourage expanding CRP or providing some kind of a parallel program to take land that is environmentally sensitive, that should not be farmed, out of production and compensate the landowner for doing that. Farmers are going to be assessed property taxes on that land as if they can still produce on it, even though it is not reasonable for them to do so.

Third, I would echo the point brought up by EPA earlier: If we expect States to do their jobs right, we have to give them the resources to do it. If States are to be the eyes, ears, and fists of EPA, we have to give them the money to hire the staff to make the programs work.

And, finally, we would draw the line for additional rulemaking authority at the State level. There is nothing worse for a farmer than going out to apply pesticides on a field and having to get the map out to see if he may have crossed a township boundary in here somewhere, or exactly what he is supposed to do. We would draw the line at the State level.

Now, moving to liability, we would support, as the Agriculture Committee did, moving from a standard of absolute liability to a negligence standard. We feel it is unfair to hold our members to the same standard that we apply to manufacturers of dynamite in the United States, that you are liable for what you do, regardless of fault.

I would point out that under the Superfund law, under CERCLA, the normal application of fertilizers is specifically exempt from the definition of a release. We would like fertilizers and pesticides to be treated as similarly as possible. To a farmer, those are both things that have to go on the ground to produce a good crop.

Now negligence can often be defined as the lack of reasonable care, and an area where we think the Agriculture Committee could have tightened their language a little bit is in defining what is reasonable care. It varies with the circumstances.

What is reasonable care for my mom and dad on a dairy farm in Pennsylvania, where maybe they have taken the State course to be certified for restricted use pesticides, and they follow the directions on the label? That is probably all the information available to them. What we can reasonably expect of them may be very different from what we can reasonably expect of a large corporate operation that has a zillion people on their research staff, that has hundreds of employees and is subject to other laws such as OSHA standards or State regs, and laws that would virtually require them to know more than what is contained on the label. We would hope that this committee might look at giving the administrator a better idea of what is the reasonable care standard, or at least allow him the flexibility to decide what is reasonable care under the circumstances in front of him.

If this committee is reluctant to move away from an absolute liability to a negligence standard, we would hope that at some point a farmer's ability to pay the damages associated with a ground water problem would come into play. Forcing farmers into bankruptcy certainly won't solve our ground water problems. We would encourage you to consider using a negligence standard, at least for the family farmer.

Now I realize the Agriculture Committee has struggled for years to try to define what a family farmer is. I'll give you our best shot. We use a three-pronged test that starts with the majority of ownership and labor being provided by the family. The second prong is one used by OSHA, that there are up to 10 employees, full-time employees, full-time, full year, or as an alternative an equivalent number of hours. You could have, for example, in the case of a wheat farm, many more than 10 employees but only 2 weeks a year to help with the harvest. The third prong would be either 75 percent of your gross income coming from your farming operation, or up to $500,000 a year in gross sales.

We feel by combining all three of those factors together, we have identified the class of farmers that the public could reasonably expect to follow the directions on the label, to use the courses that are available to them and, if they do so, to not be held liable.

In summary, Mr. Chairman, we are concerned about the environmental impact of what we do. We believe that S. 1516 is a good start, and we believe that the re-registration process has to be the first priority, has to get moving, and hopefully this year.

Thank you very much, and I would be happy to answer any questions.

Senator BURDICK. Thank you.

Mrs. Parker?

STATEMENT OF ALICE PARKER, PRESIDENT, WOMEN INVOLVED IN FARM ECONOMICS

Mrs. **Parker**. Thank you, Mr. Chairman.

Mr. Chairman and committee members, my name is Alice Parker. I am from Royal City, Washington. I am a farmer and a farm wife. My husband and I own and operate a diversified irrigated farm on the Royal Slope in the Columbia Basin Project. Our son Perry farms with us on a limited basis.

I am here today as an agribusinesswoman to give you a unique perspective on the task of preserving a supply of safe ground water for future generations. I am national president of Women Involved in Farm Economics. WIFE is a general farm organization and is policy-oriented. We are a grassroots organization and we have no paid staff. We have membership in 44 States with 23 State associations, and our membership is approaching 3,000.

My interest in water issues goes back for several years. I had the privilege of serving on an OTA review panel on a study called, "Water Related Technologies for Sustaining Agriculture in Arid and Semi-Arid Land."

In January WIFE set our priorities for 1988. Environmental concerns were included. Keith Barrons, speaking for the National Council of Environmental Balance, said it best, and I quote:

> Whether we like it or not, farmers are the custodians of a very sizeable portion of the world's land surface. Much of the earth's ecological well-being depends on how they manage the soil and the vegetation that covers it. Actually, farmers were the first environmentalists.

Today's farmers make management practices and decisions based on scientific data. We have to do so in order to protect the natural resource base and for economic reasons. Ground water is an integral part of the resource base and the source of drinking water for our farm and ranch families. Therefore, we have an important role in helping shape policy that is established on this issue.

We continually hear reports on how ground water is becoming contaminated by fertilizers and pesticides used by farmers. I am concerned about where this information is coming from, and whether it is generated on the basis of scientific facts. We all know that nature is made up of many natural chemicals and compounds, and that the science of detecting chemicals in ground water far exceeds our ability to understand the implications of these substances in ground water.

As you will note in my prepared statement, I tell about specific cases where factual information is on file. It shows that nature is often the culprit, not the farmer, in the contaminants in ground water. In addition to questioning how much contamination is from natural causes, many believe accidental spills and poor detection methods contribute to our present contamination. I want to strongly encourage you to consider extensive research on sources and levels of compounds that may be detected, rather than quickly point the finger at farming practices.

Dick Fawcett, a respected professor, researcher, and extension weed control expert at Iowa State University, reinforces my thoughts in a paper on "Pesticides in Ground Water—Defining the Problems," in which he says, "The misconceptions about ground water contamination are correctable. The public perception and picture painted in the press has seemed to be, 'Farmers use too many chemicals. Get them to use less and that will solve the problem.' The real world situation is not that simple. We have to understand the processes of contamination in order to design practices that prevent it. With better knowledge and intelligent use of that knowledge, we can regulate and solve the right problem."

I want to point out that there are already a number of laws and forces that are in place to address the possibility of people contaminating water carelessly. Many States require that anyone who applies a pesticide must have a certification license. WIFE has actively taken a role in making sure the farmers receive their certification licenses. If you don't have a certification license, you are not even able to buy the products, and certain products, you are not even allowed at that to purchase those.

We who live on farms and ranches are going to be the first to be subject to any danger or health risk if any exists. I believe I speak for farmers everywhere, that pesticides are our vital production tools and, like any tool, they must be used carefully and responsibly.

Mr. Chairman, I am here today to restate the farm community's need for evolving agrichemical technology and to advocate a balanced approach to developing public policies to protect our ground water. Pesticides are tools that have enabled the farmer to move from the capability of producing enough food for himself and three others by working 12 to 14 hours a day, to the efficient farmer who now produces enough food to feed 114 other people. Pesticides have played a major role in the agricultural process and are as important to farm production as a tractor or any other piece of equipment.

Farmers are increasingly concerned about safer use of chemicals in protection of both surface and ground water. Awareness of potential hazards from chemical contamination have prompted farmers to adopt new farming and cultural techniques and practices. Farm practices are being used today, and are sophisticated and have been developed and based on scientific findings. Possible contamination is almost nil in many cases.

As you will note, I give much more detail in my prepared statement.

As you continue to look at legislation affecting ground water, please be aware that WIFE and other farm organizations support the very carefully crafted provisions of S. 1516 which were passed by the Senate Agriculture Committee on April 20, 1988. This language recognizes the benefits of agricultural chemicals, preserves the multiple uses of ground water, while protecting public health. It contains several elements which are a must for the support of WIFE:

It sets health-based triggers that follow safe drinking water standards. It recognizes the need for flexible responses when chemicals are detected in ground water, and the different uses of ground water. It preserves a competitive and healthy U.S. agriculture industry.

Finally, let me say that bills such as S. 1419, which allow zero degradation of ground water, are unsupported by science and thus totally unacceptable, unrealistic and, as Senator Breaux said, undoable.

In closing I would like to quote Dr. Philip Kearney, head of the USDA Pesticide Degradation Laboratory, who oversees USDA-ARS research on pesticides in ground water. He says, "I have been afraid for some time that we are going to solve and regulate the wrong problem. I believe that we need to take a more holistic view of the ground water situation and try to determine all of the sources, both point and nonpoint, contributing to ground water contamination. Only then can we develop an intelligent national policy on pesticides in ground water."

I respectfully ask this committee that when making policy decisions on ground water, that scientific data be the basis of any decision rather than emotion. I also ask that the benefits of the American people and what they receive as a result of chemicals be carefully evaluated.

I ask that you include my supplemental information in the record. It supports many of my statements in my prepared testimony. Thank you for giving me the opportunity to share my thoughts with you today.

Senator BURDICK. Your supplemental information will be received for the files.

Mr. Cohen, how easily do pesticides leach into ground water?

Mr. COHEN. The question is, how do they?

Senator BURDICK. How easily do they?

Mr. COHEN. Oh, how easily. Well, it depends on the mechanism. If there are obvious cracks, or what scientists call macropores—a gross example of this being sinkholes—then leaching into ground water can occur over a course of minutes of hours. If it is flowing through, filtered through soil, through sand and soil and silt loams and that sort of thing, it can happen over a course of years. It depends on the mobility and persistence of chemicals, and if the chemical is mobile and if it is persistent—that is, "mobile" meaning not bound in the soil, and if it is "persistent," meaning that it is not degraded—then eventually, applied in enough quantities, it will show up in ground water.

Senator BURDICK. Mr. Combs, generally speaking, do most ground water contamination problems originate from routine field application of pesticides or from point source factors such as shallow wells, soil characteristics, or mixing and loading pesticides too close to wells?

Mr. COMBS. I don't know that we can answer that question explicitly today. I think that is part of what we are trying to do further research on at Iowa State University and other places in Iowa. We do know that both are sources of ground water contamination. The percentage or degree that each contributes is not definable by us at this time.

Senator BURDICK. Ms. Cook, from my perspective it is clear that small farmers simply cannot afford to be held liable for pesticide contamination of ground water when they properly apply pesticides according to label instructions. If farmers are not held liable, in your opinion should anybody else be liable?

Ms. COOK. Certainly the damaged neighboring landowner, the person who is completely innocent, who has some sustained damage to his ground water, should not be left holding the bag. If you want me to indicate to you who, if not the farmer, should be held liable, I am not sure that's my place to do that. We would not oppose imposing liability on registrants, recognizing that that would be eventually passed back to farmers in the form of higher costs for pesticides. In our view, that may be an acceptable risk-spreading mechanism among all farmers, rather than fingering one farmer for the cost of all those damages, even though he didn't do anything wrong.

Ideally, the cost of clean water or of clean resources in general is something that is in the public interest and something that the public should be willing to pay for at some point, ideally. I recognize that you are not in a position to spend that kind of money.

Senator **Burdick**. Senator Stafford?

Senator **Stafford**. Thank you, Mr. Chairman.

First I would ask unanimous consent that a statement by Senator Steve Symms, a member of this committee, be placed at an appropriate place in the record.

Senator **Burdick**. It will be received.

Senator **Stafford**. I have one question, and that I would address to Ms. Cook and Mrs. Parker, and that is, assuming that ground water has been contaminated fairly seriously, if farmers are not held liable—and maybe I would ask this first of you, Mrs. Parker, since Ms. Cook has already been asked a question about it—if farmers are not held liable for that contamination, who if anybody should be? Who pays to clean up? That's the question.

Mrs. **Parker**. I guess I would like to know first how that contamination occurred. I think we need to determine how it happened.

Senator **Stafford**. Well, assume it is the result of the use of pesticides.

Mrs. **Parker**. It is the use of pesticides. Was it because it was used illegally? Was it because it was used improperly? Was it because there are already natural compounds within the soil and the ground? I guess I would need to evaluate that, and to see where and what the causes were and who was responsible for that contamination, before I determined where the liability should come.

Senator **Stafford**. I see, but assuming the farmer has been eliminated from the chain of liability, is there anybody else who might be responsible for the cost of cleaning up?

Mrs. **Parker**. Well, I think many of our State laws, our State legislators are developing laws to address that. I know we in Washington State are developing a Superfund and looking at those kinds of things that have happened.

Senator **Stafford**. Would you have any different response, Ms. Cook?

Ms. **Cook**. No, I think I'll stick with what I said to Chairman Burdick.

Senator **Stafford**. What you told the chairman? Well, that is usually pretty good judgment in this committee.

Senator **Stafford**. Thank you both.

Senator **Burdick**. Senator Durenberger?

Senator **Durenberger**. Mr. Chairman, I to have a series of questions that I am going to submit for the record, but I do want to compliment the National Farmers Union. I see a lot of agricultural organizations are approaching this driven by the fear of the liability, and your organization has gotten out ahead and said, "Look, we shouldn't even be worrying about liability. We ought to be dealing with prevention. Let's stop worrying about having to clean up a big problem. Let's stop worrying about who we sue and all that sort of thing, and let's get to the job of preventing this problem in the first place," and so I compliment the Farmers Union and the other organizations on whose behalf you testify today.

While all of you have cautioned us on the issues around liability and we are all very sensitive to it, I don't know that that necessarily needs to be the heart of our concerns. If we can do this correctly, we shouldn't have to worry about the partnership that necessarily exists between the consumer, the farmer, and the agricultural chemical manufacturers. If we can just set the right set of rules in the system, I don't think we are going to have to worry about who sues whom.

But the realities are, in my "Sven and Ole" questions that illustrate it, there is always some "Sven" who won't stop a certain practice, and "Ole" is the guy who has to drill the new well, and that is happening all over America today, and it is happening in increasing amounts. For the Ole's of America we do need to deal hopefully not just in who gets to sue whom, because I think the manufacturers have demonstrated to us that as we learn more, they are willing to come on the scene and help. I mean, what Union Carbide did around Aldecarb and all this sort of thing indicates nobody wants this stuff to be decided in the courts. That is the last place to spend our time, but I compliment you for getting out ahead of this, as you have on the coping with change in rural America and some other issues as well.

I thank all of the witnesses very much for their testimony.

Senator **Burdick**. Thank you all.

We will now call our second panel: Ms. Hathaway, Ms. Smith, Mr. Bell, Dr. Early, and Mr. Klein.

Ms. Hathaway, would you lead?

STATEMENT OF JANET HATHAWAY, SENIOR PROJECT ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Ms. **Hathaway**. Thank you, Mr. Chairman and members of the committee. I appreciate the opportunity to testify before this committee. My name is Janet Hathaway, and I am senior project attorney with the Natural Resources Defense Council. NRDC is a nonprofit organization dedicated to protecting public health and the environment through legal research and advocacy and scientific work.

NRDC strongly supports the reform of the Federal pesticide law. We have documented deficiencies in the Federal pesticide program in testimony before this and other congressional committees, in numerous reports, and in NRDC's newly released book about pesticide residues in our foods entitled, "Pesticide Alert."

NRDC advocates many changes to the current FIFRA, some of which are included in S. 1516 as reported by the Senate Agriculture Committee. In my written statement, I discuss six major provisions included in S. 1516 which improve environmental and public health protection. I also discuss many ways in which S. 1419, the ground water bill your committee is considering, is superior to the ground water provisions now in the Senate Agriculture Committee's bill.

This morning I will only briefly touch on the disposal provisions of S. 1516 before turning to the question of farmer liability exemptions. Current law requires Government, not manufacturers, to pay the costs of storing, transporting and disposing of banned pesticides. S. 1516 wisely shifts most of these costs of disposal, storage and transportation away from the Government and to pesticide manufacturers.

The bill also requires EPA to supervise recalls, storage, transportation of the pesticides to disposal facilities, and disposal. The bill gives EPA important new authorities over the pesticide storage, transportation and disposal. However, because other Federal environmental laws already provide authorities that normally would apply to pesticides that are suspended and cancelled, NRDC urges the committee to ensure that other laws are in no way modified by implication. We recommend the addition of a proviso to S. 1516 to ensure that the disposal section is read as preserving all authorities that occur under the Resource Conservation and Recovery Act and any other environmental law.

Now I will turn to the liability issue. The question has arisen whether agricultural producers who apply pesticides legally and prudently should be absolved of all Federal environmental liability. Proponents of this amendment have never produced evidence that Federal environmental laws pose an onerous or unfair burden for farmers. Indeed, they have never demonstrated that in a single case, a Federal environmental law has imposed liability on agricultural producers.

NRDC believes that the liability provision in S. 1516 raises more questions than it answers. Even though this provision has gone through numerous incarnations in this Congress and the last, the provision is still imprecisely drafted. The consequences of allowing such a provision to become law would be numerous years of litigation to find out what it all means, and very likely appeals back to the Congress to revise it, once all that is determined by courts.

For example, the provision apparently eliminates all liability for farmers, if farmers certify that their pesticides were applied in compliance with labeling and applicable law. But is a certification determinative of whether the grower was negligent or is it only relevant evidence? Is any violation of label requirements or other law deemed negligence, *per se?* The provision does not say, and nowhere does the provision identify who bears the burden of proving negligence, nor does it explain in what form such a proof is to be made.

Casting confusion over the liability provisions of the major Federal environmental laws would surely be the consequence of such an amendment. NRDC believes that the best resolution to the liability controversy is to drop the entire provision.

Growers' concerns about potential liability for pesticide use do not stem from Federal environmental law. However, there may be theoretically some instances, extreme instances, in which Federal environmental law could in the future pose some liability question.

But I urge the Congress not to embark now on this complicated, contentious course, until we define the parameters of what liability there may be. Should we act now to narrow a never-used and only theoretical Federal authority? I would submit no.

However, if Congress determines to provide some form of exemption for growers, NRDC believes the committee should insist that any amendment explicitly identify who will be responsible for addressing the environmental costs which stem from legal pesticide use. Absent an explicit shift of liability from non-negligent growers to manufacturers, rural residents are very unlikely to obtain redress when ground water is contaminated by the lawful use of these chemicals. Cleaning up contaminated ground water should be the responsibility of those who made and sold a pesticide which was used prudently and lawfully but nonetheless ended up contaminating the ground water.

If the committee decides to craft a liability exemption, NRDC urges the committee to incorporate provisions which would, one, provide incentives for growers to use the pesticides not just legally but cautiously; two, encourage registrants to disseminate reliable, up-to-date and practical information which will help growers improve how they apply pesticides; three, shift any liability for which growers are absolved to registrants; and, four, ensure that enormous farms with both expertise and resources to implement best management practices are not entitled to any liability exemption. The committee can accomplish the first three goals by including a liability transfer and requiring agricultural producers to bear the burden of proof that any release or threatened release was in compliance with labeling and other applicable law.

Thank you very much for the opportunity to present testimony to this committee.

Senator BURDICK. Thank you.

To the remaining members of the panel, there will be about a 10-minute delay. There is another vote on. We will be in recess for that period of time. We will be back.

[Recess taken.]

Senator DURENBERGER [presiding]. You are going to have to trust me for a little while. The meeting will come to order and, as I understand it, we are on Ms. Smith's introduction and testimony. Welcome.

STATEMENT OF VELMA M. SMITH, DIRECTOR, GROUND WATER PROTECTION, ENVIRONMENTAL POLICY INSTITUTE

Ms. SMITH. Well, thank you then, Mr. Chairman.

Senator DURENBERGER. Keep it as brief as you possibly can, in view of what time it is.

Ms. SMITH. As you have heard today, a little over a decade ago we naively accepted the premise that water sources are not in jeopardy from contamination by properly applied pesticides, but today's data tells us that ag chemicals applied in accordance with registration requirements are making their way into ground water. At the same time, we are also seeing a growing body of evidence that points to adverse human health effects from the long-term exposure to low doses of these chemicals. Thus, the public has understandably become concerned with the detection of pesticides in drinking water, and EPI hopes that this committee will recognize this concern and respond with fundamental reforms to FIFRA, since the current framework is clearly not working.

We believe that the Ground Water Safety Act offers a good approach for amending FIFRA. We believe also that S. 1516, on the other hand, will yield one result. It will set in statute the triage type response to ground water contamination used for early pesticide detections. How is it that we can paint so stark a contrast between two bills with certain similarities? I will elaborate.

Both S. 1419 and S. 1516 address the pressing need for more data, but when it comes to monitoring authorities, S. 1516 stops far short of what is needed. S. 1419 goes beyond S. 1516's nationwide representative monitoring authority with what we would consider a conservatively drawn but crucial authority for EPA to compel area-wide monitoring in certain circumstances. While we would recommend that S. 1419 actually be amended to expand upon those circumstances, we stress that if EPA cannot compel a pesticide registrant to undertake area-wide monitoring in certain cases, then Congress should remember that the remainder of the provision will be useless. The importance of data collection is so great, in fact, that we also recommend that this committee add to S. 1419 a specific requirement for recordkeeping on pesticide usage.

In the area of standards, both bills appear to agree that where EPA has not already issued a drinking water standard under the Safe Drinking Water Act, EPA is to set a GRGL based on the level at which there would be no adverse effect on human health. But when standards do exist, then oddly the two bills differ significantly, with S. 1516 inexplicably departing from a "no adverse effect" standard, as was discussed earlier. My written statement includes a full discussion of this point, but for the sake of time I will move on to another critical difference between these two bills.

In our view, the questions of how and where EPA will use the GRGL's to respond to ground water contamination are the most important and most difficult aspects of this entire debate. In this regard, S. 1516 will not compel or allow EPA to take appropriate response actions until it is able to demonstrate that contamination will exceed or has exceeded health-threatening levels in currently used drinking water supplies. A comment about horses and barn doors might be appropriate here.

S. 1516 will also saddle EPA with a data-gathering burden of immense and undoable proportions, and S. 1516 promises to be fully unenforceable.

S. 1419 avoids such problems, first, by defining potential sources of drinking water broadly enough to protect currently used aquifers and aquifers that have the potential for use, without crystal-ball determinations of future water needs; second, in terms of promoting preventive aspects of the registration amendment authority, by treating current and potential water supplies as they occur in nature—as one resource, not isolated and static elements; finally, in terms of preventing human health problems and anxiety, by requiring action before health standards have been exceeded—in other words, designing the alarm system to sound at the detection of smoke rather than flames.

S. 1419 chooses a definition of a potential source of drinking water that is consistent with current practice in EPA's Office of Drinking Water. In contrast, S. 1516 provides, in essence, a nondefinition that will resurrect fundamental policy questions about what water should be protected at the point at which each contamination case is encountered. Following Senator Breaux' earlier line of questioning, I might add that we could, under S. 1516, have not just 50 approaches to what ground water to protect, but literally thousands.

S. 1516 amplifies its definition problem with a bifurcated approach to pesticide registration amendments, and we can only conclude that the two-track approach, with one set of provisions for registration amendments and response to contamination of currently-used water and another set of provisions for use when potential drinking water is polluted, is designed to limit and stymie rather than encourage Agency action in this area.

This approach is grounded in a totally untrue assumption. It assumes that EPA will be able to reliably predict a precise concentration of a pesticide in ground water at a point at which a drinking water well happens to intersect an aquifer. EPA's task is further complicated under S. 1516 with a charge to predict when ground water is likely to be used.

Your earlier witness, Dr. Cohen, last year answered the question, "Can one reliably predict pesticide concentrations in ground water?" with this response: "No. It will be a long time before one can make reliable quantitative predictions of pesticide concentrations in wells following normal use." Numerous other experts echo that conclusion.

This is not to say that attempts to predict pesticide movement are not useful and necessary. Such attempts must be made, but they must be made with an honest recognition that this area of science is constrained by unknowns, uncertainties, and immense data needs. S. 1516 gives EPA prediction mandates that are far too ambitious and, perhaps more importantly, unnecessary.

S. 1419 uses the science but does not stretch it beyond its capabilities. It offers a dose of practicality and common sense. Under S. 1419, detections are to be interpreted as cautions that EPA's registration requirements may not be sufficient to protect ground water, either in specific cases or across the board.

In other words, the EPA prescription for use may need reevaluation and alteration to keep more of the pesticide in question performing its intended function in the field, and less of it traveling into the ground water resource. S. 1419 allows the agency to save some of its resources for carrying out and then acting on these sorts of reevaluation, and experience tells us that with the opportunity to reevaluate and represcribe practices on the basis of new field data, it may be possible to achieve significant reductions in pollution.

In closing, I borrow from a conference which was held in Minnesota last fall. Obviously I cannot presume to speak for farmers, but let me pass on some of the comments which farmers who attended this conference provided.

One farmer from Minnesota made an urgent and emotional plea for action now. Interestingly, he was not a farmer who had himself shifted totally away from chemicals, but he was worried about the implications of chemical detections. Another, noting that the needs and motivations of family farmers may diverge from large corporate farm operations and from ag chemical businesses, warned that the answer is not to pollute more carefully. A member of the Minnesota Potato Growers Association volunteered that farmers are willing to adapt.

We are convinced that S. 1419 offers a formula that is measured, is practical, and is needed. It will allow us to adapt and will set us in the direction of more environmentally sound farming practices. We urge you to press for passage of this bill, and we urge you to match that commitment with other efforts in this area which I elaborate on in my written testimony.

Again I thank the committee for the opportunity to testify, and I would be happy to answer any questions.

Senator **Durenberger**. Thank you very much.

Mr. James Bell.

STATEMENT OF JAMES BELL, JR., REPRESENTING THE AMERICAN SOYBEAN ASSOCIATION

Mr. **Bell**. Senator, I am James Bell, Jr., from Clarksville, Tennessee. I raise soybeans, corn, and wheat in Tennessee and Kentucky. I am a member of the American Soybean Association and the National Corn Growers Association. Today I am representing these groups, as well as the National Association of Wheat Growers, the National Cotton Council, and the National Cattlemen's Association. These groups, representing the Nation's farmers and ranchers, are deeply concerned about protecting ground water. As farmers and ranchers, we are perhaps the primary environmentalists. We live in, work in, and rely on our farm and ranch environment. We are the first ones to be affected when our environment changes. Farm and ranch families generally rely on ground water to supply their family water needs.

Protecting ground water quality is a growing concern within our country. Our agricultural producers, who are obviously dependent upon rural water supplies, want to be active and positive participants in State and national efforts to safeguard ground water.

While pesticides and fertilizers are considered potential contaminants of ground water, very little is known of actual contamination levels. It can be unclear whether the residues that have been found in some ground water supplies are a result of improper use of the chemicals or by correct and appropriate use of the pesticides and fertilizers. Improving our understanding of the present condition of ground water supplies and the cause of any pollution that we might discover must be the initial objective of a national ground water strategy. Regulatory programs to prevent pollution can be better designed as this information becomes available.

In the meantime, our commodity organizations have launched a very ambitious educational campaign to acquaint farmers with the critical issues in protecting ground water and to promote safe practices that avoid accidental release of pesticides. For example, the American Soybean Association and the National Corn Growers Association are distributing this educational video entitled, "Ground Water and Agricultural Chemicals: Understanding the Issues."

A copy of the video has been provided to the EPW committee staff for review. It has also been sent to all State departments of agriculture, all land grant university deans, many State and local farm organizations, extension specialists, lending libraries, and others who have requested copies, domestically and internationally. By the end of May, 1988, between 26,000 and 30,000 people had viewed the video, with 65 percent of the video requests coming from farmers, 24 percent from agribusiness companies for presentation to groups, and 11 percent from university and other farm organizations.

We see a need for EPA, USDA, and the farmer to work in harmony to encourage correct and safe use of pesticides in sensitive geological areas. Only through education and awareness can we diminish accidental pesticide movement into ground water or perhaps careless use of a pesticide. EPA must fulfill its responsibility to determine that when a pesticide is correctly used, it will not result in a harmful pesticide level in ground water.

We support the ground water protection language of S. 1516 reported by the Senate Agriculture Committee. We believe it is the appropriate action at this time.

We are concerned that the ground water provisions of S. 1419 could unduly restrict or prohibit the use of vital pesticides. While pesticides are formulated to decompose over time, S. 1419 does not adequately take this into account in calling for use limitations.

The action levels set by S. 1419 at this time appear to us to place emphasis on virtually no detection of any pesticide material in any ground water. To suggest that three detections of pesticide nationally should mandate action on a pesticide as a leacher under national regulatory standards may incorrectly promote a national action when very localized special circumstances or accidental intrusion may be the cause. However, that concern does not suggest that determining national safe health levels is unwarranted.

We encourage, to the best level of scientific ability, the establishment of Ground Residue Guidance Level equivalent to the Maximum Contaminant Levels for significant pesticides. While the action in response to monitoring detections may need to be a percentage of a health effects level, the action level should be set at a level sufficient to tell us a real potential problem deserves attention, like 30 percent of the GRGL and MCL. This is in contrast to a smaller level that may cause public concern toward a problem that is not sufficiently related to known health effects, such as the use of a percentage of an estimated Maximum Contaminant Level Goal which already includes a significant margin of safety.

EPA's current registration and re-registration processes include consideration of a pesticide's leaching potential, and EPA's application rates and methods are approved in accordance with leaching and other data. We believe the ground water safeguards contained in S. 1516 complement ongoing regulatory programs and provide a sufficient framework for preventive action levels.

While ground water may be considered a resource of the States, consistent national ground water policy and standards need to be established to avoid a growing variance among States in addressing ground water concerns and any variance of protection actions based on different chemical interpretations. National standards must be matched with local hydrological variation and cropping practices. Therefore, States must be involved in implementation.

We believe the inclusion of ground water language in a reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act is the appropriate place to address the issue of pesticides in ground water, and we support the language proposed in S. 1516 as reported from the Senate Agriculture Committee.

Now moving to limitation of farmer liability, EPA requires extensive testing of a pesticide before it can be sold or used. Use instructions on pesticide labels are developed on the basis of scientific data gathered during the registration process, and pesticide users are required by law to adhere to those instructions. We believe that pesticide users should only be held accountable for storing, applying, and disposing of the pesticide in strict compliance with the label—actions the producer can control. The producer has absolutely no control over the chemical composition of the pesticide, such as whether it is environmentally safe, and should not be liable for environmental effects not foreseen by the EPA when registering the product.

We support language adopted by the Senate Agriculture Committee in S. 1516 to specifically exempt farmers and ranchers from such liability when using a pesticide according to its label instructions. The bill fairly allocates responsibility to the agricultural producer for what he can control, and fairly exempts the producer for what he cannot control. We do not believe it necessary, however, to assign liability to another party.

As a farmer, I cannot test the accuracy of the pesticide and fertilizer labels prior to application. I must rely on the EPA registration process to address technical issues such as the potential for leaching into ground water. Because——

Senator DURENBERGER. Can you try to wind up that statement, because I am 15 minutes late for where I am supposed to be. I don't know where the chairman is, and we really ought to give Jack and Mr. Klein an opportunity to say something.

Mr. BELL. Yes, sir, I will.

In summary, I would like to say we support the language of S. 1516 on ground water and limitation of farmer liability. We cannot address nonagricultural ground water protection concerns of the Senate Environment and Public Works Committee in FIFRA, and appropriately we should not. We urge your endorsement of the workable approach to ground water protection and limitation of farmer liability written in S. 1516.

I would like to thank you for this opportunity to testify and I will be pleased to answer any questions you might have.

Senator DURENBERGER. Thank you very much.

Mr. Early is next.

STATEMENT OF JACK EARLY, PRESIDENT, NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION

Mr. EARLY. Thank you, Senator Durenberger. Mr. Chairman, we thank the committee for the opportunity to participate in this hearing on pesticides in ground water today. At the outset I would like to point out to the committee that behind me are three very outstanding experts that are prepared to assist me in this very difficult area of technical issues. We have Mr. Jones, Mr. Julin, and Mr. Rolofson behind me. I should have said "doctor" in front of all those gentlemen. I didn't want to take their title away from them.

I understand, Mr. Chairman, that the purpose of this hearing is to explore the general subject of pesticides in ground water and what the agricultural pesticide industry is going to learn about and prevent contamination. You have already heard at the previous hearings about the value of ground water, the lack of complete information about its contamination from many sources, and the relative roles of the Federal and State government authorities. Accordingly, I will not take much time on those issues here today.

Let me first turn to our efforts to learn more about the potential of pesticides entering our ground water. Our efforts really begin before a product is even sold. As you may know, the Federal registration of pesticides involves the development and submission of exhaustive information about the product, including data on hydrolysis, photolysis in soil and water, aerobic and anaerobic effects, and other information on environmental fate. For older products, where EPA believes further information is needed, we also must supply that data at EPA's request.

Companies in our industry are also monitoring today for the residues in ground water as part of their product stewardship program. For example, in recent testimony before a House Agriculture Subcommittee, Monsanto Company estimated that it had spent over $11 million in water quality research from 1985 to the present.

There are other efforts to collect physical, chemical, and biological data and other information that may indicate the potential for products to leach, as well as developing models and statistical analyses for prediction. Our expert witnesses accompanying me here today are prepared to discuss those efforts if you would like to have more amplification. It is sufficient to say now that this prediction methodology is a vital element in effective monitoring programs.

An important aspect of this information-gathering effort is in relating agricultural pesticide usage, environmental and other conditions to positive and negative findings of pesticides in ground water. Our experiences have been so far that there are surprising inconsistencies and unknowns in this kind of information. The weakness of some monitoring programs to date is that they fail to consider agricultural practice, soil, weather conditions, and actual water and pesticide uses.

Turning now, if I may, to the second major theme: As we learn more about the potential of pesticides in ground water, our industry is also developing strategies for minimizing its entry into ground water. We are proud of our record in educating our customers on responsible pesticide use and ways to avoid having agricultural chemicals get into ground water.

You may already know of our NACA booklet entitled "Protecting Our Ground Water," and I meant to have a copy of it today, Mr. Chairman. I will bring you a copy. That was jointly developed by our organization, the U.S. Department of Agriculture, the American Farm Bureau Federation, and the National Agricultural Aviation Association, and is already in its third printing with some 200,000 copies distributed.

NACA for the last several years has actively worked with EPA and Federal and State agricultural extension service personnel to encourage applicators and agricultural producers to attend State-sponsored certification training programs. We believe these State-sponsored certification training programs are a key to good ground water education.

Also, with the objective of providing a benchmark for assessing the impact of pesticides in ground water, NACA urged several years ago that EPA develop and publish health advisories. This was a critical first step in EPA's large-scale ground water study currently underway.

Finally, with respect to our efforts to reduce any potential for harmful contamination of ground water, we are trying to develop new product formulations and applications, and here are just a few examples: materials that have less persistence and biodegrade more rapidly in the soil; products with higher biological activity, allowing use rates to be reduced from pounds down to ounces or even grams per acre; more effective post-emergence herbicides that significantly reduce soil contact; improved targeting of products, so that they go on-target and not off-target; formulations that are easier to clean up in the event of an inadvertent spill.

Again, the public and the private efforts in determining the cause of ground water contamination are the key to developing new products and application techniques. Further research really is needed, and focused on perhaps these areas: developing and validating ground water and surface water computer modeling techniques; mapping aquifers; determining aquifer quality and present and future aquifer uses; studying degradation and mobility of pesticides in subsoils and other saturated zones in the soil; developing best management practices that we all are very much in favor of.

In closing, Mr. Chairman, at the committee's request, I have touched on briefly what is pending on ground water legislation before the Congress. Our industry commends you, Mr. Chairman, for addressing the ground water research history, some of the issues I have just raised, in S. 1105. Better coordination of Federal ground water research activities is constructive and is needed, as I have said. We also support the provisions of S. 1516 dealing with the regulation of pesticides in ground water, as it was reported by the Senate Agriculture Committee. It responsibly recognizes the Nation's dual needs for safe and abundant water and food, yet also correctly relieves agricultural producers from Federal liability if pesticides are used lawfully, and does not assign liability except as provided under current law. S. 1516 is, in large part, the result of a cooperative effort some years ago between a coalition of some 40 environmental groups, agricultural interests, EPA, and Congress.

We thank you for the opportunity for testifying today, Mr. Chairman, and would be delighted to respond to your questions.

Senator Burdick. Thank you, Mr. Early.

Our next witness will be Mr. Andrew Klein.

STATEMENT OF MR. ANDREW KLEIN, MANAGER, REGULATORY AFFAIRS, MONSANTO CO.

Mr. KLEIN. Thank you, Mr. Chairman. My name is Drew Klein. I am manager of regulatory affairs for Monsanto Company and the chairman of NACA's Water Quality Committee, and I appreciate the opportunity to testify here today.

I would like to describe a little bit about the Water Quality Committee at NACA. We started in 1982 to address the growing concern of our member companies in finding pesticides in ground water and drinking water. It consists of technical experts from our member companies that meet on a routine basis with the goal of designing programs to both elucidate and identify potential problems, for predicting future problems, and for preventing future problems.

In the interest of brevity I would just like to close by reminding the committee and Congress that pesticides are designed to be released in the environment. They are designed for a specific beneficial purpose, and that is a benefit to society, and the benefit side of the equation is something that should be considered.

Thank you, and I would be happy to answer any questions.

Senator BURDICK. I regret that the hearing went pretty much over time. It's now about 12 minutes to 12 o'clock—1 o'clock, so I think what we will do is, if you don't mind, you can submit answers to our questions that we give to you in writing. Within a reasonable time, if you can get the replies back, that will be satisfactory.

So with that, we thank you for being here, we thank you for your testimony, and that will end today's hearing.

[Whereupon, at 12:48 p.m., the committee adjourned.]

[Statements submitted for the record follow:]

Comments to U.S. Senate Committee on the Environment and Public Works

James Combs
Iowa Department of Natural Resources

I appreciate this opportunity to share with the you Iowa's experiences and perspectives on ground water protection as it relates to pesticides. While my comments today will focus on pesticides in ground water because that is the focus of these hearings; I feel it is important to point out that pesticides are a subset of a group of compounds we refer to as synthetic organic compounds or SOCs.

Background

Over the last seven years the combined efforts of resource agencies in Iowa has shown that many of the commonly used pesticides are leaching through the soil and into ground water. Over 1000 samples have been collected in Iowa and nearly 40% have been found to have low concentrations of one or more pesticides present. In addition, investigations conducted by the Iowa Department of Natural Resources into the ability of conventional treatment systems to remove or reduce the concentrations of these pesticides have shown that public water supplies are ill-equipped to deal with these chemicals once they are in the source water.

Ground water provides the drinking water for 65% of Iowa's population. Monitoring of public drinking water supplies in Iowa indicates that over one quarter of the State's population is now exposed, at least intermittently, to low concentrations of one or more pesticides in the water they drink. The importance of this resource and public awareness of its contamination has lead to strong support for a serious effort to prevent further water quality problems in Iowa. Public opinion polls conducted by private consultants and by the Des Moines Register have shown similar results. More than 80% of those polled believe that the contamination of ground water is a serious problem and want more done to solve the problem. More importantly, however, is the fact that there is no significant difference between the urban and rural populations. This testimony is completed with a list of documents that provide a more detailed summary of research and monitoring programs conducted in Iowa. With the permission of the Chairman I would like to provide the committee with a copy of these reports and enter them into the record.

Iowa's Groundwater Protection Strategy

In 1985, the Iowa Legislature requested that the Iowa Department of Natural Resources prepare a ground water protection strategy. The Legislature specifically asked that the strategy identify significant sources of ground water contamination and make specific recommendations on how the state should eliminate those sources.

Thirteen potential sources of ground water contamination were evaluated during the development of the strategy. They were selected from those sources widely believed to be among the most important in Iowa. Information believed to be most relevant to policy analysis was compiled for each source identified. This included collection of data about the sources' geographic distribution and documented or possible effect on ground water quality. Health impacts were considered as well, especially as contaminant distribution and population exposure relates to potential health risk. Furthermore, existing laws and programs were evaluated to determine inadequacies and needed improvements.

The thirteen potential sources were ranked with respect to their degree of importance in contributing to the ground water problem. Scientists, business men and women, and the general public were all given the opportunity to rank these sources. There was general agreement among all parties on the relative importance of each source in terms of the threat it posed to ground water quality. The potential sources, from most significant to least, were:

1. Agricultural use of nitrogen fertilizer.
2. Agricultural use of pesticides.
3. Abandoned hazardous waste disposal sites, abandoned dumps, and unpermitted land disposal.
4. Underground tanks and pipelines.
5. Landfills.
6. Storage, handling and transportation of hazardous substances.
7. Agricultural drainage wells.
8. Abandoned wells.
9. Sinkholes.
10. Land applications of solid and liquid wastes.
11. Lagoon and pits.
12. Septic systems.
13. Urban use of nitrogen fertilizer and pesticides.

There is broad consensus in Iowa on what the problems are and that more needs to be done in the state to protect the resource. Public opinion polls conducted by private consultants and by the Des Moines Register showed similar results. More than 80% of those polled believed that the contamination of ground water is a serious problem. An equal number of those polled indicated that they wanted more done to solve the problem. Interestingly, there was no significant difference between the urban and rural populations.

Iowa's Groundwater Protection Act

On January 1, 1987 the Iowa Department of Natural Resources (DNR) presented to the Iowa Legislature a ground water protection strategy. The strategy was unique in that it advocated an approach to environmental protection which departed from historical efforts. Six months after the strategy was presented to Iowa's Legislature, the 1987 Ground Water Protection Act, a bill which mirrors the strategy, became law.

The keys to understanding Iowa's strategy are found in its goal and policy statements. The state calls on its citizens to protect the quality of ground water in the course of conducting their daily activities. The state's goal is no further degradation, and its policy is one of preventing any further contamination and cleaning up where contamination has occurred. The basic tools for accomplishing the provisions of the ground water protection program are research, demonstration, monitoring and public education.

The State of Iowa is committing between $11 and $13 million in state funds annually to protect ground water. These monies are raised through increased fees on commercial fertilizers, pesticides, underground storage tanks, household hazardous materials, and disposal in landfills. In addition, to cover the cost of the program while the new fee structures are phased in, $17.5 million in oil overcharge rebate funds will be used over the next five years. This money is from oil overcharge court settlements against certain oil companies which were found to have overcharged consumers from 1973 to 1981, when oil prices were federally regulated.

General Provisions

The Iowa Ground Water Protection Act requires the DNR to establish a comprehensive ground water monitoring program. This program is to include the monitoring of municipal, private and observation wells. It establishes a cost share program between state and county governments for the monitoring of private wells.

Three centers of study are established at the three state universities. The Leopold Center for Sustainable Agriculture at Iowa State University will study more efficient use of chemicals in farming operations. The Small Business Assistance Center at the University of Northern Iowa will help small businesses in the state handle and properly dispose of their waste. The Center for Health Effects from Environmental Contamination at the University of Iowa will look at the affects environmental contaminates have on human health.

Pesticides and Fertilizers

Anyone engaged in the sale of fertilizers in the State of Iowa must have a license. All fertilizers are subject to a surcharge of $.17 per ton. Nitrogen based fertilizers are subject to an additional $.75 per ton, based on an 82 percent solution and prorated for different solutions.

Any commercial or public pesticide applicator, or applicator of restricted use pesticide must be certified, and must now pass a state exam to receive that certification. Anyone selling pesticides in Iowa must now obtain a license which will cost one tenth of one percent of the applicants gross sales if their gross sales are greater than $10,000 per year. The pesticide registration fee was increased from $25 per product to one-fifth of one percent of gross sales up to $3000 for each product sold in the state.

All pesticide sales in Iowa must now be recorded and reported to the Department of Agriculture and Land Stewardship. Local governments are to adopt rules to require the notification of adjacent properties when pesticides are applied in urban areas. Lastly, the DNR will issue grants to county conservation boards to implement alternative practices to pesticide application on county right-of-ways.

Wells, Sinkholes, Watersheds and Wetlands

All agricultural drainage wells (wells used to drain marshlands in small geographic areas of Iowa) must be reported to DNR by January 1, 1988. By 1991, all ag drainage well owners and farm operations with sinkholes must submit a plan to the Department of Agriculture and Land Stewardship showing how contamination will be eliminated from their ag drainage well(s) and sinkholes. The state's goal is to eliminate all contamination from ag drainage wells and sinkholes by 1995.

All new well construction must be permitted by the county or DNR. All abandoned wells must be closed according to a schedule developed by DNR. Financial assistance will be available to insure proper closure of these wells. Upon sale of any property, the landowner must disclose any waste disposal, underground storage tanks or existing wells on the property.

Solid Waste Management and Landfills

The tonnage fee for disposal in landfills will go to $1.50 per ton on July 1, 1988 and increase annually by $.50 per ton until it reaches $3.50 per ton. The state has established a waste management hierarchy from the most preferable to the least preferable of

1. Volume reduction at the source.

2. Recycling and reuse.

3. Combustion with energy recovery and refuse-derived fuel.

4. Combustion for volume reduction.

5. Disposal in sanitary landfills.

All landfills must submit a plan for alternative disposal methods to be implemented in the future. All grants for alternative disposal practices will be made according to the waste management hierarchy. All sanitary landfill operators must be certified by 1991, and private disposal of any waste on any property now must be permitted by DNR.

Household Hazardous Waste

All retailers who sell household hazardous materials must now have a permit. Retailers will display shelf labels which identify products that are considered hazardous. Informational booklets will also be available which will explain how these materials are to be handled and disposed. The DNR will conduct several Toxic Waste Cleanup Days around the state and the Department of Transportation will operate two waste oil collection centers in the state.

Underground Storage Tank Management

By July 1, 1989 all underground storage tanks, regardless of size, must be reported to DNR. All tanks with a capacity of 1100 gallons or more must be tagged, and it is unlawful to fill any tank over 1100 gallons that is not tagged. Tags are issued annually. Finally, a legislative committee will make recommendations on establishing an insurance pool to insure proper tank installation and removal of unused and leaking tanks.

Education

Throughout all of the various provisions of the Iowa Ground Water Protection Act there is an element of education. The bill sets up demonstration projects around the state in each of the major areas of concern. The Act directs that an environmental education curriculum be established for 7th and 8th grades. And, it directs the DNR to establish public education and information dissemination programs. The latter is to include providing public access to data.

Direction

There is surprisingly little regulation involved in the ground water protection Act. The regulation contained in the Act generally is built upon existing programs. Out of the $12 million for next year's activities, more than $7 million is for research, more than $2 million is for monitoring in support of that research and another $2 million is for education and demonstration. The Act focuses on education, information and on other positive actions needed to begin to resolve the long-term problem of ground water pollution. Perhaps the Iowa Legislature stated it best when they wrote in the Act:

> "All persons in the state have a right to have their lawful use of ground water unimpaired by the activities of any person which render the water unsafe or unpotable. All persons

> in the state have the duty to conduct their activities so as to prevent the release of contaminants into ground water. Education of the people of the state is necessary to preserve and restore ground water quality. The content of this ground water protection education must assign obligations, call for sacrifice, and change some current values. Educational efforts should encourage each Iowan to go beyond enlightened self-interest in the protection of ground water quality."

Implementing this Act provides a unique opportunity for the environmentalists, industry, agriculture and all sectors of Iowa to work together in a cooperative spirit to find effective and equitable means to protect a very important resource for the State.

Iowa's Approach to Groundwater Protection

Historically, environmental protection efforts have focused on getting society to accept pollution; regulators have placed their emphasis on identifying a 'safe' level of pollution, and allowed the resource to be degraded up to that level. While this approach has been effective at controlling severe point source pollution discharges, the state of Iowa does not believe it would be a particularly efficient or effective method to protect groundwater resources. It relies on numbers and permits to ensure compliance with those numbers. Frankly, we don't know how to issue permits to 137,000 farmers and 2.8 million people that tell them how much each of them can put in the ground water -- much less how to enforce such a system.

Ambient groundwater is not the same as treated drinking water; if aquifers are allowed to be contaminated to Maximum Contaminant Levels (MCLs) any further contamination would render the water unsafe for human consumption and would be extremely costly, if not impossible, to clean up. Iowa's preventative approach does not classify aquifers according to present or anticipated use, nor does it require standards that define an acceptable level of ground water contamination. Instead, Iowa is focusing on positive actions -- research, demonstration, monitoring and education -- designed to discover and show its citizens how they can conduct their activities in a way that prevents ground water contamination. Iowa's program is also unique in that the costs of protection and cleanup efforts are assigned to the polluter, not the user of the resource. Approximately 11 million dollars are raised each year through fees on pesticides, fertilizers, solid waste, household hazardous materials, and underground storage tanks. No potential polluter is exempted, and that includes farmers. They pay a portion of the costs through agricultural chemical fees. The actual amount, however, is minimal; less than $20 per year for the average farm. This compares to (costs borne by other individual household consumers) -- landfill fees of $60 per year, and water/sewer bills of $200 per year and thousands paid by Iowa industry to install and operate pollution control equipment.

At the same time, the economic viability of farmers is not threatened; they are still able to produce, and they are not prohibited from using fertilizers and pesticides.

The State of Iowa has several recommendations for federal groundwater policy and programs. Additional research is needed on the impact of man's activities on ground water, including those of traditional agriculture; health effects from exposure to low concentrations of pesticides and other SOCs; and alternative agricultural practices such as reduced or modified chemical use, alternative crops and cropping patterns. Public policy at all levels must focus on helping people change their behavior so that there is less environmental damage occurring. We must guide the research and outreach efforts of our Land Grant universities in this direction. We must make sure that government sets an example and sends a consistent message to all through economic incentives and support programs.

The question is, why are we as a society trying to use technical tools as policy? Why are we classifying aquifers and adopting standards? Have such actions significantly improved environmental quality in other areas? We do not understand the mechanics of pollutant movement to ground water well enough to ensure we can protect the resource, nor do we understand the hydraulics of aquifer systems well enough to ensure the public that our actions are correct. Groundwater by its nature necessitates a preventative approach. Classifying aquifers and adopting standards does not prevent contamination. We know so little about aquifer systems and pollutant movement that to 'write off' some aquifers is a game of exceeding danger that could have adverse effects on the quality of the very ground water we are intending to protect. As a society, the expenditure of large sums of money to develop standards and monitor groundwater to insure compliance is wasteful; the same money could be spent on developing ways to prevent the problem and thus eliminate the need for standards and monitoring. If federal standards are adopted, however, action levels should be included to mandate corrective action at very low levels of contamination, long before the standard is reached.

Any federal program should allow state flexibility in implementation. States that already have protection efforts underway should be given latitude in implementing federal programs, recognize differing environmental and economic needs and climates.

Recently I have noted that some agri-chemical companies are contracting with plant genetic companies to develop strains of plants resistant to stronger chemicals. This must be viewed as a alarming development and the wrong approach. Rather than developing chemically tolerant plants, policy should encourage and support development of insect and disease resistant plants. Crops which are able to tolerate agricultural chemicals do not prevent contamination, they encourage increased chemical use. Humans, as well as other living organisms, will not have the benefit of this genetic alteration. A few of these chemicals are a known threat to human health at low concentrations. Activities which would cause greater amounts of chemicals to be released into the environment should not be encouraged or supported with public funds.

Iowa has decided to act and that action was based on the belief that ground water is a precious resource to the state. Quality ground water is essential to a quality life and is the basis of a clean environment. In the final analysis, clean ground water is essential to making Iowa, and this nation, a desirable place to live.

A clean environment benefits everyone and all sectors of society should be held accountable for its protection. In doing so, we assure that the cost of protection assigned to potential polluting activities is based on the risk those activities pose to the environment. In Iowa, our program is comprehensive and farmers are not excluded. However, the cost is not so great as force anyone out of business. The cost to the average farm in Iowa is less than $20 per year. This nation has a vast and precious resource in its ground water that must be protected and utilized wisely. It is, after all, the base for 200 more years of American Society.

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NATIONAL
FARMERS
UNION

TESTIMONY OF THE NATIONAL FARMERS UNION

BEFORE THE

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

JUNE 10, 1988

Good morning, Mr. Chairman. I am Cheryl Cook of the National Farmers Union, and I appreciate the opportunity to be here today. My statement is also on behalf of the American Agriculture Movement, and the League of Rural Voters.

When I talk to farmers about pesticides and FIFRA, the same questions keep coming up:

- What's in this stuff?
- What's it doing to my family?
- What's it doing to my livestock?
- What's going to happen to my property value if the water here is no good?
- What will happen to me if my neighbor finds pesticides I use in his well?
- Will I have to stop using pesticide x on my farm just because they found it in some wells halfway across the country?
- How am I supposed to know all of this? It's almost impossible to farm anymore without breaking the law!
- I want to cut down on the pesticides I put on my fields, but how can I when the only way to survive financially is to keep my production up?
- Will I be able to pass the place on to my kids?

Farmers are businessmen who are trying to make a living. They are heads of families who value human health. But most of all, they are concerned stewards of the land who want to do the right thing, if someone would only tell them what the "right thing" is.

That's why our organizations believe in passing a strong

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FIFRA bill this year. Prompt reregistration of pesticides is critical to gathering the information that we all need. We believe that the bill approved by the Agriculture Committee is a good start. And, with some fine-tuning from this Committee, we can go to the floor of the Senate with an even better package. The two areas I'll touch on today are groundwater protection and the liability of farmers who apply pesticides in a reasonably prudent manner.

In the area of groundwater, I would begin by saying that farmers are not experts on how much pesticide residue is too much. A negligible risk standard seems fair, provided that states are not prevented from imposing a higher standard if they believe it's necessary. The proper standard depends on the health risks as assessed by people with expertise in that field. It depends on the ever-improving ability to detect pesticides. And, it depends on what levels of cost the public is willing to accept. If asked whether the proper groundwater residue guidance level standard is the maximum contaminant level (MCL), which the Agriculture Committee favored, or the maximum contaminant level goal (MCLG), which is the standard preferred by S. 1419, the best answer I could give would be, "I don't know."

What I do know is that regardless of the appropriate groundwater contamination standard, if we wait until a pesticide reaches or exceeds that level to start doing something about it, we've probably waited too long. The sooner a potential problem can be addressed, the easier and the less costly it will be. We support the provisions for monitoring and site-specific responses in S. 1419, because they can keep groundwater from becoming contaminated in the first place.

We support the provision of S. 1419 that triggers certain notifications when a pesticide is detected at a groundwater sampling point, provided that at some point we can be assured that farmers in the area are notified, too. Notice to the landowner where the sample was taken and others relying on the underground drinking water source won't necessarily reach the people who make up the first line of defense in keeping pesticides from reaching contamination levels. This may be an appropriate role for any of several agencies within the Department of Agriculture, such as the Extension Service or the Soil Conservation Service, since these agencies can also help farmers to implement better resource management practices.

We support S. 1419's provisions for registration amendments, particularly label changes, because they would provide farmer users with updated information sooner than is the case in S. 1516 (25% of the GRGL as opposed to 30%). The sooner farmers can get the latest information, the sooner they can adapt their use patterns. This will help us avoid contamination problems, and can keep a necessary product on the market longer.

However, we also support the provisions in S. 1419 that would allow the Administrator to delay implementation of registration amendments if the health and environmental effects of product alternatives are worse. The Administrator should be able to take all factors into account. The bill requires monitoring underground drinking water sources and site-specific action to prevent contamination, while encouraging development of safe alternatives. This seems like a reasonable balance. It still requires that the changes be in place within five years, which seems like ample time for registrants to make available either better information or a better alternative product.

Our organizations have four concerns beyond S. 1419 that we would encourage the Committee to consider. First, as indicated above, we feel there is a need to involve the Department of Agriculture. We are not suggesting that the Secretary of Agriculture supplant the Administrator in handling FIFRA. We are suggesting that the Department can be a source of information; to EPA in terms of normal farming practices and the needs of the industry, and to farmers in terms of the latest information on environmental dangers and how to minimize them. We would encourage coordination between EPA and USDA to the maximum extent possible.

Second, we feel that eligibility for the Conservation Reserve Program, or some comparable program, should be extended to land that is no longer arable for environmental reasons. If monitoring shows a reasonable likelihood that continued use of a pesticide will cause groundwater contamination, or if a soil type is particularly vulnerable to leaching, farmers should not be forced to choose between being environmentally responsible and making a living. If it is in the public interest to stop farming a tract of land, then the public should be willing to compensate the landowner. After all, the farmer pays property taxes as if that land were in production.

Third, we are concerned about the role of states. We must be sure that we provide states with adequate resources to fill their expected role as the eyes, ears, and fists of EPA. A thorough state program without money or staff is of little use to anyone.

Finally, we would recommend drawing the line of additional rulemaking authority at the state level. Political subdivisions can provide valuable information to states and should help in implementing state programs. But, we do not feel that political subdivisions should establish higher standards than those of the state. This is a potential regulatory nightmare for a farmer whose land abuts or overlaps municipal boundaries.

In the area of farmer liability, our organizations believe that our members should not be held to the same standard of absolute liability that is imposed on manufacturers of dynamite. We believe, as did the Agriculture Committee, that a negligence standard is more appropriate.

One definition of negligence is the lack of reasonable care. Unlike the Agriculture Committee, we recognize that what is reasonable care under one set of circumstances may not be under another. What is reasonable care for a small farmer who has no information available to him other than the pesticide label and any instruction offered by his state in becoming certified for restricted use pesticides, may not be reasonable care for a large corporate farming operation that employs many applicators, has a research staff, and is subject to Occupational Safety and Health Administration standards or state right-to-know laws. These operators would have the opportunity, if not the obligation, to know more than the information on the label. The Agriculture Committee basically provided for self-certification of reasonable care, using information that may be sufficient in the former instance, but not in the latter. The Administrator should be able to look at all the facts in determining whether an application that was within label guidelines and applicable law might still have been negligent.

A second reason why we support an exemption from liability for the normal application of pesticides is the treatment of fertilizers under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). According to CERCLA, a "release" specifically does not include the normal application of fertilizers. S. 1516 relies on the CERCLA definitions. To a farmer, fertilizers and pesticides are both substances that are necessary to produce a good crop. They should be treated as similarly as possible.

A third concern for our position rests on the ability, or inability, of our members to pay the amount of damages involved in a contamination problem. Driving a farmer into bankruptcy will not help the Administrator deal with contaminated water. If this Committee is reluctant to give up absolute liability in its entirety, we would urge you to consider providing an exemption for non-negligent family farmers. We recognize that the Agriculture Committee has been struggling with a definition of that term for some time. We would recommend using a three-fold set of criteria:

1. That the family owns the farm, provides most of the labor and management decisions, and takes the economic risks; and

2. That the farming operation hires fewer than or equal to ten employees full-time year-round, or the annual equivalent in employee hours; and

3. One of the following:

    a. That the farming operation have annual gross sales not exceeding $500,000, or

    b. That at least 75% of the family's gross income comes directly from the farming operation.

Again, Mr. Chairman, our organizations are primarily concerned with having a FIFRA bill this year. The information to be obtained through the reregistration process is too important to allow this issue to languish into the 101st Congress. We look forward to working with the members of this Committee and their staffs in moving forward with the best legislation possible.

Thank you. I would be happy to answer any questions you might have.

STATEMENT BY ALICE PARKER

PRESIDENT, WOMEN INVOLVED IN FARM ECONOMICS
BEFORE THE
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
June 10, 1988

Mr. Chairman and Committee Members, my name is Alice Parker. I am from Royal City, Washington. I am a farmer and a farm wife. My husband and I own and operate a diversified farm on the Royal Slope in the Columbia Basin Project. Our son, Perry, farms on a limited basis with us. I am here today as an agribusinesswoman to give you a unique perspective on the task of preserving a supply of safe groundwater for future generations. I am National President of Women Involved in Farm Economics (WIFE). WIFE is a general farm organization and is policy oriented. We are a grassroots organization with no paid staff. We have membership in 44 states with 23 state associations and approaching 3,000 members. WIFE works with other Agriculture organizations in coalitions where mutual interests exist. I personally serve on the Board of Directors of such coalitions. My interest in water issues goes back for several years. I had the privilege of serving on a review panel for the Office of Technology Assessment on a study called "Water Related Technologies for Sustaining Agriculture in Arid and Semi-Arid Lands."

In January of this year, WIFE established its priorities for study and action in 1988. Those issues included environmental concerns. Keith Barrons, speaking for the National Council of Environmental Balance, said it best: "Whether we like it or not, farmers are the custodians of a very sizeable portion of the world's land surface. Much of the earth's ecological well-being depends on how they manage the soil and the vegetation that covers it. Actually, farmers were the first environmentalists". Today's farmers make farm management decisions based on scientific data. They do so in order to protect the natural resource base and for economic reasons.

Groundwater is an integral part of the resource base and the source of drinking water for our farm and ranch families. Therefore, we have an important role in helping shape policy that is established on this issue.

We are hearing reports of how groundwater is becoming contaminated by fertilizers and pesticides used by farmers. I am concerned about where this information is coming from and whether it is generated on the basis of scientific facts. We all know that nature is made up of many natural chemical compounds and that the science of detecting chemicals in groundwater far exceeds our ability to understand the implications of these substances in groundwater.

Let me tell you about a specific case that I know about. We hear about the high level of nitrates found in groundwater because of the use of fertilizers used in modern day production agriculture. My area was not extensively farmed until the late 1950's and early 1960's when the area received irrigation water as a result of the Columbia Basin Irrigation Project. Prior to that time, farming and ranching consisted of a very limited dryland wheat production and livestock grazing. Not too far from my home there was a well dug on a railroad section many years ago. Testing, at that time, was done on nitrate levels and that data is on file at the Bureau of Reclamation in Ephrata, Washington. The tests showed high levels of nitrate at that time. A member of WIFE from the dryland part of eastern Washington also has data on their own well. When their children were born approximately twenty-five years ago they were concerned about the quality of their drinking water so they had testing done. The levels of nitrate were so high at that time they were told that it was unsafe for human consumption. Recent tests show that there is no change in nitrate levels since the use of fertilizers has become a part of their farm management practices. Therefore, one might conclude that in many cases the nitrate level is from natural sources rather than man-made causes.

In fact, in addition to questioning how much contamination is from natural causes, many believe accidental spills and poor detection methods contribute to our present contamination. I want to strongly encourage you to consider extensive research on sources and levels of compounds that may be detected rather than quickly point the finger at farming practices. Dick Fawcett, a respected professor, researcher, and extension weed control expert at Iowa State University, reenforces my thoughts in a paper on "Pesticides in Groundwater - Defining the Problems" in which he says, "The misconceptions about groundwater contamination are correctable. The public perception and picture painted in the press has seemed to be: 'Farmers use too many chemicals. Get them to use less and that will solve the problem.' The real world situation is not that simple. We have to understand the processes of contamination in order to design practices that prevent it. We need to recognize that pesticides each have unique properties. They are not all alike. With better knowledge and intelligent use of that knowledge we can regulate and solve the right problem, and effectively protect groundwater quality in Iowa."

I want to point out that there are already a number of laws and forces that are in place to address the possibility of people contaminating the water carelessly. Many states require that anyone who applies pesticides must have a certification license in place before he can buy pesticides.

To obtain that license he must have gone through a rigid training program and must take recertification tests every 2 or 3 years.

In addition the chemical companies go through years of research in developing a chemical before it is approved for labeling by EPA. Many factors including how a chemical reacts in certain soil types are included in this research. Just last week I had the opportunity to see the DuPont Research Facility in Wilmington, Delaware. It certainly assured me that they are doing extensive research on all chemicals and are not selling any that haven't fulfilled EPA's requirements. I received the feeling that they do have a personal stake in the health of those of us who are constantly using the pesticides and are living in that environment every day.

We who live on farms and ranches are going to be the first to be subject to any danger if any exists. I believe I speak for farmers everywhere that pesticides are vital production tools and like any tool, they must be used carefully and responsibly.

In the 1986 Report, "Agriculture and the Environment" by Resources for the Future, it was agreed that pesticide use has reduced crop losses significantly. In economic terms, a figure of $3-$5 in returns to every $1 spent on pesticides is quoted widely. Moreover, pesticides clearly reduce the variability of crop losses, thus contributing to food security.

Over the past 15 years, however, concern about environmental and health effects of pesticides has stirred public debate. This debate and these hearings have had and will continue to have a positive effect on rational patterns of pesticide use and pest management practices that allow society to take advantage of the positive features of pesticides while minimizing their adverse effects.

Mr Chairman, I am here today to restate the farm community's need for evolving agrichemical technology and to advocate a "balanced" approach to developing public policies to protect our groundwater. Short term policy options might include severe limitations on agricultural chemicals. For the long term, however, more research into pest management technologies would seem to be more appropriate.

Pesticides are tools that have enabled the farmer to move from the capability of producing enough food for himself and 3 others by working 12 to 14 hours a day to today's efficient farmer who produces enough food to feed 114 other people. Pesticides have played a major role in the agricultural process, and are as important to farm production as a tractor or other piece of equipment.

Farmers are increasingly concerned about safer use of chemicals and protection of both surface and groundwater. Awareness of potential hazards from chemical contamination has prompted farmers to adopt new farming and cultural practices which, in fact, will result in less water run-off, selection of less hazardous chemicals, more informed use of chemicals, and use of grass areas near potential entry sites of surface water into groundwater.

Chemigation has become an efficient and economical method of applying fertilizer and chemicals in irrigated agriculture. A mechanical device has been developed and is being installed by farmers on their irrigation systems that will prevent any back-syphoning of the fertilizer or chemicals.

Other farm practices that will prevent any possible contamination are being implemented by farmers. For example, sophisticated calibration equipment will enable farmers to only apply enough chemicals to do what is necessary. Under the current economic conditions, a farmer cannot afford to use more chemicals than necessary.

Integrated pest management is a production practice that is widely used and greatly reduces the need for the extensive use of chemicals. As an example, to keep our soil disease-free and reduce the amount of chemicals needed, we use crop rotation. Wheat and corn are the major crops used in rotation with vegetable crops as Integrated Pest Management. Potatoes can only be successfully grown every 5 years, dry edible beans and peas every 4 years, and sweet corn every 2 to 3 years. These are only a few of such examples.

As you continue to look at legislation affecting groundwater, please be aware that WIFE and other farm organizations support the very carefully crafted provisions of S.1516 which were passed by the Senate Agriculture Committee on April 20, 1988. This language recognizes the benefits of agricultural chemicals, preserves the multiple uses of groundwater while protecting public health. It contains several elements which are a must for the support of WIFE:

- It sets health-based triggers that follow safe drinking water standards
- It recognizes the need for flexible responses when chemicals are detected in groundwater and the different uses of groundwater
- It preserves a competitive and healthy U.S. agriculture industry.

Finally, let me say that bills such as S.1419, introduced by Senator Durenberger, and which allow zero degradation of groundwater, are not sensitive to a balancing of agricultural interests and thus, are totally unacceptable to WIFE.

In closing, I would like to quote Dr Phillip Kearney, head of the USDA Pesticide Degradation Laboratory, who oversees USDA-ARS research on pesticides in groundwater. He says, "I have been afraid for some time that we are going to solve and regulate the wrong problem. I believe that we need to take a more holistic view of the groundwater situation and try to determine all of the sources, both point and non-point, contributing to groundwater contamination. Only then can we develop an intelligent national policy on pesticides in groundwater." I respectfully ask this Committee that when making policy decisions on groundwater that scientific data be the basis of any decision rather than emotion. I also ask that the "benefits" the American people receive as the result of chemicals be evaluated.

Thank you for giving me the opportunity to share my thoughts with you.

Mr. Chairman, I ask that you include the attached materials as part of the printed hearing record.

attachments

Natural Resources Defense Council

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TESTIMONY
OF
JANET S. HATHAWAY
ON BEHALF OF THE
NATURAL RESOURCES DEFENSE COUNCIL

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

CONCERNING S. 1516, REAUTHORIZATION OF

THE FEDERAL INSECTICIDE, FUNGICIDE AND

RODENTICIDE ACT (FIFRA)

AND

S. 1419, THE GROUND WATER SAFETY ACT OF 1987

JUNE 10, 1988

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Thank you for inviting me to testify before this Committee on S. 1516, the Federal Insecticide, Fungicide and Rodenticide Act Reform of 1987, and on S. 1419, the Ground Water Safety Act of 1987. My name is Janet Hathaway, and I am Senior Project Attorney with the Natural Resources Defense Council (NRDC). NRDC is a nonprofit organization of approximately 84,000 members and contributors dedicated to protecting public health and the environment through scientific research and legal advocacy.

I. FIFRA REAUTHORIZATION IS A TOP NRDC PRIORITY.

NRDC strongly supports reform of the federal pesticide law to improve environmental and public health protection. We have documented the deficiencies of the pesticide regulatory program in testimony before this and other Congressional committees, in numerous reports, and in NRDC's newly-released book about pesticide residues in our foods entitled Pesticide Alert[1]. NRDC advocates numerous changes to the current FIFRA, all of which are necessary if the program is to functional sensibly and effectively to protect consumers, workers and the environment.

First and foremost, the federal pesticide program must have data on the toxic effects of all pesticides on the market. Although in 1972 Congress mandated collection of such data and reassessment of pesticides registered with incomplete data, there are still only two pesticides which have been fully reevaluated and formally reregistered.[2] Nearly six hundred other pesticides remain to be examined. Funding sufficient to enable the EPA to complete this massive task within a relatively brief period--no more than 9 years--is essential.

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[1] Lawrie Mott and Karen Snyder, Natural Resources Defense Council, Pesticide Alert, 1988.

It is also imperative that Congress eliminate multi-million dollar subsidies to manufacturers of exceptionally dangerous pesticides which are required by the indemnification and disposal clauses of the current FIFRA.[3] Although some pesticide industry representatives have tried to preserve the indemnification clause by insisting that it improves the likelihood of environmentally sound disposal, Dr. John A. Moore testified to the Congress, "All [indemnification] does is pay those holding the pesticides, whether manufacturers or end users. . . . It is in no way connected with disposal and storage."[4] There must be also be stringent federal standards governing the storage, transportation and disposal of "banned" pesticides[5] and adequate enforcement of those standards. To date, the indemnification and disposal provisions have drained over $30 million[6] from a pesticide program which limps along with a budget of approximately $40 million annually[7]. EPA representatives acknowledge that perhaps as much as 60,000 gallons of the pesticide EDB, a product which was banned because of its extraordinary risks of cancer and reproductive toxicity, leaked into the environment while it was being stored at government expense in Liberty, Missouri.[8] Not only is it important to eliminate subsidies to pesticide manufacturers, but it is equally important to ensure that pesticides which are deemed too dangerous to be used are removed from the market and destroyed expeditiously and safely.

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[2] Senate Agriculture Committee Report on S. 1516, Report 100-346, May 13, 1988, page 7,

[3] Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. § 136 m and § 136 q.

[4] Testimony of Dr. John A. Moore, Assistant Administrator for Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Hearing before the House Committee on Government Operations, Subcommittee on Environment, Energy and Natural Resources, July 9, 1987.

[5] Whenever all uses of a pesticide are both "suspended" and "cancelled", the pesticide is generally referred to as "banned". Suspended and cancelled pesticides cannot be sold for use in this country, but under current law such chemicals may still be manufactured in this country for use abroad.

As registrants are required to submit new data implicating other pesticides as excessively dangerous, the costs associated with the federal indemnification and disposal obligations will escalate dramatically. At the request of a Senate Appropriations Subcommittee, EPA recently estimated the cost of indemnities for seven high-risk pesticides which may be subject to cancellation.[9] EPA estimated the indemnification costs associated with any future decision to suspend and cancel each of these products:

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[6] Costs expended by late 1987 for 2,4,5-T/Silvex indemnification and disposal amounted to $25.0 million; costs for Ethylene Dibromide (EDB) totalled $4.5 million. Estimated future costs for 2,4,5-T/Silvex are $3.5 million; for EDB total $10.0 million and for Dinoseb range from $60 to 120 million. Committee on Government Operations, "Soaring Subsidies for Banned Pesticides Stymie Safety Reviews," November 24, 1987, page 14.

[7] The Office of Pesticide Program had a fiscal year 1987 budget of $42.3 million. Id.

[8] Congressman Robert E. Wise questioned EPA Region VII Administrator Morris Kay and Mr. Ray Krueger, EPA's Project Officer for EDB, on the leakage of EDB from a storage facility at a hearing of the House Government Operations Committee, November 10, 1986, Id., page 8-9.

PESTICIDE	INDEMNITY COST
alachlor	$ 161.5 million
benomyl	$ 78 million
chlordane	$ 53.2 million
daminozide	$ 7.9 million
dinoseb	$ 30 to 50 million
linuron	$ 35.6 million
methyl bromide	$ 23 million
TOTAL INDEMNITY COSTS	$ 339.2 TO 413.2 MILLION

Storage and disposal may double the expenses which the government would incur by suspending and cancelling these products. Thus, it should come as no surprise that EPA has proposed to allow continued use of existing stocks of dinoseb and chlordane, despite the great dangers EPA has identified with use of these pesticides.[10]

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[9] See Pesticide and Toxic Chemical News, May 20, 1987, page 16. EPA comments submitted in response to questions from Senator William Proxmire following a hearing of the HUD-Independent Agencies Subcommittee of the Senate Appropriations Committee on March 26, 1987 indicate that the benomyl figure should be $ 78 million rather than the $ 4 million reported by the newsletter.

[10] The U.S. District Court in the District of Columbia invalidated EPA's decision to permit use of existing stocks of chlordane. National Coalition Against the Misuse of Pesticides, et al., v. United States Environmental Protection Agency, Civ. No. 87-2089-LFO, (D.D.C., February 23, 1988). An appeal has recently been filed in the D.C. Circuit. After suspending the

II. PROVISIONS INCLUDED IN S. 1516 WHICH ENHANCE FIFRA.

We believe that provisions now included in S. 1516 would greatly advance the goal of ensuring that pesticides will not be used in ways that endanger public health or the environment. Among the improvements included in S. 1516 are the following six major provisions.

A. REREGISTRATION OF OLD PESTICIDES AND ENHANCEMENTS OF EPA ENFORCEMENT AUTHORITY. S. 1516 includes provisions which were the centerpiece of legislation passed by both the House and Senate in the 99th Congress. The bill would require manufacturers of pesticides now on the market to submit complete health and safety data. EPA must finally reevaluate the data within nine years. The bill improves public access to health and safety data before pesticides are registered; requires the testing and evaluation of risks of so-called "inert" ingredients; demands immediate cancellation of pesticides registered based on invalid or false data; includes provisions to improve EPA's ability to enforce the FIFRA[11]; and enhances penalties for all violations of the federal pesticide law.

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teratogenic herbicide dinoseb on October 7, 1986, EPA staff in January of this year reached an agreement with the makers of dinoseb which would allow its continued use for up to two years. The proposed settlement has been recommended to EPA Administrator Lee M. Thomas, and a decision from the Administrator is expected later this week.

[11] For example, the bill requires better record-keeping by registrants and distributors and gives EPA authority to enter premises and inspect or copy records.

B. FEES FROM PESTICIDE REGISTRANTS TO FINANCE EPA'S REREGISTRATION OF PESTICIDES. S. 1516 includes a provision which requires manufacturers ("registrants") of pesticides to pay fees to the Environmental Protection Agency to help fund the evaluation of each pesticide's effects on health and the environment. The fees which would be raised by this bill are estimated to amount to $160 million over the 9 years of the reregistration program.[12] If federal revenues to the EPA's pesticide program are constant, the total available for the pesticide program's review of the risks posed by pesticides would be $270 million. EPA estimates that $270 million will be sufficient for the task.

C. STOPPING THE INDEMNIFICATION OF MANUFACTURERS OF BANNED PESTICIDES. S. 1516 revises the indemnification provisions of current law. NRDC supports eliminating any governmental obligation to compensate people who own pesticides which have been banned ("suspended and cancelled"), and the Senate Agriculture Committee gets much closer to that goal. The one group that would still routinely receive compensation from EPA under S. 1516 are "end users" (farmers and others who buy pesticides to apply them but who do not intend to resell or distribute pesticides). Distributors can receive indemnification in rare cases (where EPA finds that the bankruptcy of a registrant left them without recourse to reimbursement), but it would take a future act of Congress to indemnify the registrants. This provision will stem the flow of federal money to makers of banned pesticides.

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[12] Senate Agriculture Committee Report on S. 1516, Report 100-346, May 13, 1988, page 20.

NRDC recognizes that pesticide users and distributors are not generally in a position to avoid the use of a pesticide which is under scrutiny at EPA because of data indicating health or environmental risk. Farmers and other end users of pesticides can be caught unawares with pesticides worth thousands of dollars if EPA suspends the product just as the user planned to apply the pesticide. To avoid burdening pesticide users while resisting demands to create a federal obligation to defray costs associated with an unduly dangerous product, NRDC believes Congress should require registrants to conduct a recall and reimburse all holders for the purchase price of any product which is subsequently suspended and cancelled. Under S. 1516, EPA has authority to order a recall under section 1601, but recalls are not routinely required.

D. MAKING INDUSTRY PAY COSTS OF STORING, TRANSPORTING AND DISPOSING OF BANNED PESTICIDES. S. 1516 shifts most of the costs of disposal, storage and transportation away from the government to pesticide manufacturers and distributors.

The bill requires EPA to supervise the recall, and storage as well as the transportation of the pesticide to disposal facilities. S. 1516 gives EPA new authority over pesticide storage, transportation and disposal. Because other federal environmental laws already provide authorities and requirements which may apply to pesticide transportation, storage and disposal, NRDC urges the Committee to ensure that other laws are in no way modified by implication. Any possible interpretation of these FIFRA provisions to undermine authorities or obligations under the Resource Conservation and Recovery Act (RCRA) would be eliminated if this Committee were to add a proviso to ensure that the section is read as preserving all authorities or mandates under RCRA and other environmental laws.

The Agency retains the obligation to evaluate disposal plans to ensure that registrants dispose of these dangerous chemicals in a manner which protects health and environment.

In an effort to prod EPA into promptly evaluating disposal plans, the Agriculture Committee bill provides for partial government reimbursement of storage costs for banned pesticides while the registrant awaits EPA approval or rejection of a disposal plan. However, all disposal costs are the responsibility of the registrant--a substantial improvement over the current law.

E. REQUIRING EXPORT CONTROL AND PRIOR NOTIFICATION OF INTENTION TO EXPORT RESTRICTED OR BANNED PESTICIDES. The Senate Agriculture Committee adopted a provision offered by Senator Wyche Fowler to tighten controls over certain pesticide exports. This section applies to pesticides which have been cancelled, suspended or voluntarily withdrawn; pesticides which have been classified for "restricted use"; and pesticides which have not been registered in the U.S. The bill prohibits the export of any such pesticide unless the EPA Administrator has provided notice to the country of import's appropriate regulatory agency, including a statement explaining the United States' regulatory position on the chemical. Exports of these especially dangerous pesticides can be sent only to countries which meet eight criteria enumerated in S. 1516--which criteria are designed to be met only by countries with effective pesticide laws and regulatory programs.

F. IMPROVING PESTICIDE MONITORING AND GOVERNMENT INFORMATION ABOUT PESTICIDES USED ON IMPORTED FOODS. S. 1516 includes a provision, also offered by Senator Fowler, which will help to improve the information about pesticides used on food crops in countries which are major agricultural exporters to the United States. The Food and Drug Administration (FDA), the agency which monitors our food for pesticides and other residues, currently has extremely limited information on the use of pesticides abroad. Without such information, pesticides monitoring of imported food may inadequately detect pesticide residues which remain on the food. S. 1516 includes a provision which would require the U.S. government to enter into agreements with governments of our major agricultural trading partners to obtain information about pesticide use practices. In addition, FDA would be required to use computerized systems to review and summarize the findings of the domestic and imported food monitoring programs.

III. PROVISIONS TO PROTECT GROUND WATER FROM PESTICIDES.

A. AGRICULTURAL CHEMICALS POSE THREATS TO GROUND WATER.

Ground water is a precious resource which supplies drinking water for approximately half of American households. In rural regions, 97 percent of residents rely on ground water for drinking water.[13] Ground water is also relied on for other domestic purposes and for irrigation. Ground water sustains wetlands and provides about one-third of surface water flows.[14]

Decades ago it was commonly believed that ground water was naturally protected from substances which may contaminate surface water. Many thought that hazardous substances applied to soil would degrade or bind to the soil before reaching underground supplies of water. These hopeful theories have been proven incorrect, and a variety of contaminants have been detected in ground water throughout the country.

Agricultural chemicals are now known to pose a major threat to ground water quality. Pesticides which are applied to crops may persist and migrate through the soil until they reach underground reservoirs or "aquifers." Last year EPA reported that ground water contaminated with pesticides has been detected in 24 states, and a total of 20 pesticides have been identified.[15] In 1985, California reported that 57 pesticides were discovered in 2,887 sites in over 23 California counties.[16] Although some of the detected pesticides were believed to result from spills, ruptured storage tanks or other "point sources", the California Assembly Office of Research concluded that 22 of the 57 pesticides are either known or suspected to result from nonpoint sources, such as agriculture.[17]

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[13] EPA, Improved Protection of Water Resources from Long-Term and Cumulative Pollution: Prevention of Ground-Water Contamination in the United States, April 1987, page 1.

[14] Id.

Recent detections of aldicarb in Long Island's ground water, the sole source of drinking water for 3 million people, led first to use restrictions and ultimately to a ban on the use of the pesticide in Suffolk and Nassau counties.[18] In Florida, 828 wells tested positive for the carcinogen ethylene dibromide (EDB).[19] The nematocide dibromochloropropane (DBCP), a pesticide for which nearly all uses have been cancelled because of effects including reproductive toxicity, was found in 2,449 wells in

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[15] U.S. Environmental Protection Agency, Agricultural Chemicals in Ground Water Strategic Plan, June 1987, p. I-11. Later in the year, EPA stated that 19 pesticides in 24 states had been identified where the probable source of contamination was agricultural operations as opposed to spills or other point sources. EPA, Agricultural Chemicals in Ground Water: Proposed Pesticide Strategy, December 1987, page 21.

[16] Most sites were domestic, agricultural and municipal water supply wells. California Assembly Office of Research, The Leaching Fields: A Nonpoint Threat to Groundwater, March 1985, page 17.

[17] Id.

[18] Patrick W. Holden, Pesticides and Groundwater Quality, Board on Agriculture, National Research Council, 1986, page 4.

[19] Id., p.87.

California alone.[20] These sorts of incidents have alerted growers, federal and state government, and the public to the need for a strategy to avert pesticide contamination.

Virtually no one suggests that ground water contaminated by pesticides can be adequately addressed by remedial measures. NRDC agrees with EPA's assessment: "Once widespread contamination of ground water by pesticides has occurred, it is often not economically or technically feasible to restore the resource."[21] Even the costs of monitoring for pesticide contamination in drinking water wells can be prohibitive. Costs estimates for initial monitoring for only two pesticides at each of the approximately 10.9 million private, currently-used wells in counties at high risk for pesticide contamination[22] range from a low of $0.9 billion to a high of $2.2 billion.[23]

Because of the enormous costs and technical impediments to cleaning aquifers contaminated with pesticides, NRDC places the highest premium on ground water proposals which will prevent contamination. We believe prevention is possible only if government and pesticide registrants are required to take action immediately to minimize the migration of pesticides to ground water. Because pesticides may migrate very slowly through soil and into ground water[24], the first detection of pesticides in ground water may occur only shortly before significant and widespread contamination is found. Mistakes in the ways we use pesticides today may not be discernible in our ground water for a number of years.[25] Reevaluation and modification of our pesticide uses must begin as soon as there is evidence that currently-used pesticides pose threats to ground water.

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[20] Id.

[21] EPA, Agricultural Chemicals in Ground Water: Proposed Pesticide Strategy, December 1987, page 1.

[22] These 1,437 high risk counties include 361 counties which are geologically highly vulnerable to pesticide contamination and are sites of high pesticide use, and 1,128 counties where either pesticide use is at a high level and where vulnerability to pesticide contamination is medium or vulnerability is high and pesticide use is medium. These counties represent approximately 46% of the counties in the conterminous States. Elizabeth G. Nielsen and Linda K. Lee, United States Department of Agriculture, Economic Research Service, The Magnitude and Costs of Groundwater Contamination from Agricultural Chemicals, June 1987, page 19.

[23] Id., page 33.

B. S. 1419 ENHANCES GROUND WATER PROTECTION.

There are a number of ways in which S. 1419, the Ground Water Safety Act of 1987, would greatly enhance federal protection of ground water from pesticides.

1. Potential and Current Sources of Drinking Water are Protected. An essential feature of S. 1419 is the sponsor's decision to protect, and to protect equally, all current and

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[24] "Water moves in streams commonly at rates of feet-per-second, whereas ground water moves at rates of feet-per-year or tens of feet-per-year." Testimony of Philip Cohen, Chief Hydrologist, U.S. Geological Survey, Department of Interior, Hearing on Groundwater-Related Programs of the USGS and EPA, S. Hrg. 100-330, June 5, 1987, page 45.

[25] "It takes many years for contamination to spread in ground water and we are now reaping the fruits of our actions over the past century or so." Testimony of Doyle G. Frederick, Associate Director, U.S.G.S., _Id._, page 28.

potential sources of drinking water.[26] NRDC strongly supports this fundamental decision. Unless the bill provides protection to aquifers which are not currently used, but which are capable of providing drinking water, the legislation will permit degradation of ground water resources that future generations may desperately need.

Even today's best demographic and ground water demand projections are unlikely to predict all areas in which population density or ground water use may increase. Even protection of current and what we designate today as "likely" future sources may be insufficient. But surely it would be even more foolhardy to assume that to protect the drinking water for all future Americans we need only protect sources currently being used. Indisputably, in some regions the ground water withdrawal rate exceeds the rate of recharge, threatening localized exhaustion of economical supplies in several decades.[27] Even if there are no changes in population densities nationwide--a most dubious assumption--we will still need to use ground water sources beyond those which are currently in use. Aquifers which we currently consider useless may become a valuable resource in years to come.

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[26] The decision by the framers of S. 1419 to protect current and potential drinking water equally is especially significant in contrast to S. 1516 as reported by the Senate Agriculture Committee. S. 1516 provides EPA authority to protect some potential sources of drinking water, but neither EPA nor registrants are required to act to protect such aquifers unless pesticides have been detected at levels above ground water standards.

[27] Testimony of Doyle G. Frederick, op. cit., pages 22, 24 and 26.

Therefore a preventive program which looks beyond narrowly-defined, immediate needs must protect both current and potential sources of drinking water.

A broad legislative definition of "underground source of drinking water" is necessary to protect all ground water resources which may prove valuable. S. 1419 provides a definition of underground source of drinking water[28] encompassing all sources of sufficient quantity to supply a drinking water well and which contain less than 10,000 mg/l total dissolved solids, or which currently supply drinking water for human consumption.[29] Some have argued that S. 1419's definition is too broad and would result in protection for aquifers which are oily or naturally contaminated with radioactive substances. NRDC has proposed an alternative definition for "underground source of drinking water" which we believe would provide EPA some discretion while clearly requiring the Agency to protect all sources of water which can reasonably be expected to supply drinking water.[30]

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[28] "Underground source of drinking water" includes both potential and current drinking water.

[29] S. 1419, section 2, creating new FIFRA section 31(a)(7).

[30] The term "underground source of drinking water" means an aquifer or portion of an aquifer system that--
(A) currently supplies a drinking water well; or
(B)(i) contains a sufficient quantity and quality of ground water, taking into account the availability of feasible treatment and recovery technologies, potentially to supply a public water system or drinking water well; and
(ii) contains fewer than 10,000 mg/liter total dissolved solids.

2. EPA Must Identify Potentially Leaching Pesticides and Establish Health-Protective Federal Guidance Levels. S. 1419 requires EPA to determine at registration or reregistration, based on tests required from registrants of pesticides, which chemicals are likely to leach through soils into ground water.[31] If EPA identified a pesticide as a potential "leacher," or if a federal or state agency petitions the EPA for a guidance level, EPA is required to set limits for residues of the pesticide in ground water ("ground water residue guidance levels" or "GRGLs").[32]

Under S. 1419, for pesticides which have not been regulated under the Safe Drinking Water Act, EPA must set the GRGL at "a level at which no known or anticipated adverse effect on the health of persons occur and including an adequate margin of safety, taking into consideration the nature of the toxic effects caused by the pesticide, and the validity, completeness, and adequacy of data about the pesticide."[33]

For non-carcinogenic pesticides for which EPA has promulgated a maximum contaminant level goal (MCLG) under the Safe Drinking Water Act, the GRGL must be set at the MCLG level.[34] MCLG are based solely on health considerations, and are set at a level which is believed to produce no adverse effects, while providing an additional margin of safety of at least two orders of magnitude. NRDC considers this to be an appropriate level to guide a preventive ground water program.

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[31] S. 1419, section 31(c)(3).

[32] S. 1419, creating new section 1429(a) in the Safe Drinking Water Act, entitled "Ground Water Residue Guidance Level."

[33] S. 1419, at section 3, creating a new section in the Safe Drinking Water Act, section 1429(a)(2)(C).

For carcinogenic pesticides for which EPA has promulgated standards under the Safe Drinking Water Act, S. 1419 requires the EPA to set the GRGL at the maximum contaminant level (MCL)[35], if the MCL has been set at a level which assures that "concentrations of the pesticide in drinking water will not present more than a negligible risk of chronic adverse health effects with an adequate margin of safety for groups of sensitive individuals and other subpopulations."[36]

This "negligible risk" standard for carcinogenic pesticides is objectionable for two reasons. First, MCLs are not set solely based on of health or environmental considerations, but instead reflect costs of removing contaminants from public drinking water systems. A standard which reflects the cost of removing contamination is an inappropriate standard by which to trigger action to avert contamination. In other words, a standard which considers the economics of cleanup is likely to condone much more pollution than would be condoned by a standard that considered only health consequences.

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[34] S. 1419, section 3, creating new Safe Drinking Water Act section 1429(a)(2)(A).

[35] Under the Safe Drinking Water Act, maximum contaminant levels (MCL) are set at a levels which approach the maximum contaminant level goal (MCLG), but which takes into account the cost and technical feasibility of measuring and reducing the contaminant.

[36] S. 1419, section 3, creating a new section to the Safe Drinking Water Act, section 1419(a)(2)(B).

Second, S. 1419's "negligible risk" standard for carcinogenic pesticides is insufficient to constrain EPA from asserting that high cancer risks, such as risks exceeding one in a million, are "negligible." NRDC is concerned that the vagueness of S. 1419's mandate to EPA to set guidance levels which present no more than a negligible risk will lead courts reviewing EPA standards to defer to virtually any Agency claim concerning acceptability of risks. Instead of requiring more protective standard-setting, this provision could insulate EPA's use of standards which result in high risks to some portions of the population. NRDC believes that S. 1419 should explicitly prohibit EPA from considering any risk of cancer which exceeds a rate of one cancer in a population of one million as "negligible."

Finally, S. 1419's ground water standards do not ensure protection of vulnerable ecosystems which are sustained by ground water. Because ground water frequently interacts with surface streams and sustains wetlands, GRGLs must take into account potential effects on the environment, as well as human health. Some substances, such as copper salts, are toxic at much lower concentrations to aquatic organisms than to mammals. In circumstances where adverse effects on the environment occur at levels lower than human health effects, GRGLs should be established at levels which will adequately protect the environment.

3. **Registrants Must Create Best Management Practices and Monitor for Leaching Pesticides.** Under S. 1419, if a pesticide is determined to have the potential to leach, registrants must monitor for the pesticide in representative geographical and hydrogeological settings.[37] Registrants must also develop and disseminate best management practices to avert the migration of the pesticide into ground water.[38] Best management practices (BMPs) are techniques which may involve tilling or irrigation practices, the method or timing of application of the pesticide, and other agricultural practices which can avert or limit the migration of leaching pesticides. NRDC believes that mandatory monitoring and the development of BMPs for pesticides which threaten ground water are necessary components of ground water protection legislation.

4. **Registrants Must Notify Well Owners and Users of Pesticide Detections.** Under S. 1419, registrants are required to inform EPA, the state, the property owners, and people relying on the ground water when pesticides are detected.[39] NRDC applauds the drafters for including this provision. Without such an obligation to notify when contamination is found, state and federal governmental programs will proceed oblivious to important

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[37] S. 1419, at section 31(e)(1).

[38] S. 1419, at section 31(d).

[39] S. 1419, at section 31(f).

evidence that a pesticide may threaten ground water. Property owners and people relying on the ground water clearly also have a vital interest in information about contamination in the water they use. With such information owners and users may decide to limit their use of the water, to seek other sources, or to investigate treatments which may be used to reduce user's pesticide exposure.

5. **EPA Must Amend Registrations When Pesticide Detections Reach Twenty-Five Percent of GRGLs.** S. 1419 requires EPA to amend pesticide registrations to modify the conditions of use when detections in ground water reach or exceed 25 percent of the GRGLs.[40] EPA is required to consider changes to the registration which can minimize migration of the pesticide through soil. Modification of registrations to limit uses, to avoid particularly vulnerable regions or soil types, and to specify appropriate rates, times, frequencies or methods of application, or to require training and certification of users, may enable appropriate pesticide uses to continue while eliminating practices which led to ground water contamination. S. 1419 also requires EPA to review the new pesticide use restrictions to determine their effectiveness. NRDC believes such registration amendments, triggered considerably before pesticides reach high levels, are necessary to avert widespread and dangerous contamination.

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[40] S. 1419 at section 31(h)(1) and (h)(3).

6. **EPA or States Must Take Site-Specific Action When Pesticide Detections Reach Fifty Percent of GRGLs.** Where the pesticide detections are at or above 50 percent of the GRGL, the federal government or the state is required to take action to prohibit local uses of the pesticide, to provide alternate water supplies for public health protection, or to require remedial treatment of the ground water.[41]

EPA is required by S. 1419 to promulgate regulations to define use prohibitions which will be imposed near ground water sources with contamination at or above 50% of the GRGLs. Regulations shall include a county-wide prohibition on pesticide use whenever a pesticide is detected at 50% of the GRGL at 5 or more locations in a county.[42]

The bill wisely requires site-specific actions before dangerous pesticide contamination levels are reached. Even triggering action when monitoring indicates concentrations at half of the GRGL may be too late to prevent exceeding the GRGL because of the months or years that may elapse between pesticide use and pesticide migration into ground water. NRDC strongly supports the concept that state or federal action must be sufficient to assure that concentrations of the pesticide are brought down below the ground water residue level.

7. **States Must Develop Plans to Prevent Surface and Ground Water Contamination from Pesticides.** S. 1419 requires states,

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[41] S. 1419, at section 31(i).

[42] S. 1419, section 2, creating new FIFRA section 31(i)(2)(C).

within 2 years, to develop and submit plans to protect water resources from pesticides.[43] State involvement in planning to protect water resources is essential to the success of any federal program. No less than the $25 million per year provided by S. 1419 will be necessary to enable states to construct an accurate inventory of soil types, pesticide use patterns, and pollution problems. S. 1419's restriction of the availability of leaching pesticides to states for which EPA has not approved a ground water plan within 3 years after enactment[44] provides a firm nudge to states to rapidly submit an appropriate protection plan.

C. GROUND WATER PROVISIONS IN S. 1516.

The Senate Agriculture Committee reported S. 1516, a bill to reform the federal pesticide law, on April 20, 1988. Included in the bill as reported by the Agriculture Committee are provisions granting authorities to the Environmental Protection Agency to improve ground water protection. In many regards, the ground water provisions in S. 1516 parallel the provisions of S. 1419. But in every instance where the two bills diverge, S. 1419 contains the provisions which will better ensure protection of public health and the environment. I will briefly note the most important points of difference between the two bills.

1. S. 1516, Unlike S. 1419, Does Not Equally Protect Current and Potential Sources of Drinking Water. Detection of

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[43] S. 1419, section 2, creating new FIFRA section 32(a).

[44] S. 1419, section 2, creating new FIFRA section 32(d).

pesticides in potential drinking water will not result in EPA modifications of pesticide uses unless the concentrations exceed GRGLs. Registration amendments will normally occur if pesticides are detected in actual sources of drinking water at 30% of the GRGL. 7

Similarly, S. 1516 requires site-specific response to ground water contamination only if pesticide concentrations exceed GRGLs and only if the ground water currently supplies drinking water. In contrast, S. 1419 requires site-specific responses at 50% of the GRGL at any current or potential source of drinking water.

2. **S. 1516 Enables EPA to Establish Ground Water Residue Guidance Levels (GRGLs) At Levels Which May Endanger Public Health or the Environment.** S. 1516 would require EPA to set ground water standards at the maximum contaminant level (MCL) set under the Safe Drinking Water Act. Because MCLs were created for different and conceptually antithetical purposes--MCLs are set under a statute which presumes existing contamination in many public drinking water supplies and seeks to remove pollutants from these systems--MCLs are irrelevant in ground water pollution prevention. Here Congress is attempting to construct a strategy which will prevent the migration of pesticides into ground water and avoid the need for cleanup. As discussed above, these levels inappropriately include considerations of the economics and technical feasibility of cleanup--an issue which has no relevance to the policy question of whether, or to what extent, society should condone contamination of water supplies. MCLs,

particularly for carcinogens, are likely to allow contamination even beyond a point which poses dangers to human health. S. 1516 would not halt the use of leaching pesticides, or require mitigation, until dangerous levels accrue in our drinking water supplies.

3. S. 1516 Does Not Require Registrants to Develop Best Management Practices or to Monitor for Leaching Pesticides.

4. S. 1516 Does Not Require Registrants to Notify All Well Owners and Users of Pesticide Detections.

5. S. 1516 Does Not Require EPA to Amend Registrations When Pesticide Detections Exceed Twenty-Five Percent of GRGLs. Registration amendments are required under S. 1516 when EPA determines that GRGL is likely to be exceeded in different localities. Apparently, the detection of pesticide levels which may pose human health dangers is not considered significant enough to warrant action unless it occurs in a variety of places. When concentrations reaching 30% of GRGLs are found in actual sources of drinking water, S. 1516 creates a presumption that the GRGL is likely to be exceeded. This presumption applies only if the detected pesticides happen to be in current drinking water supplies. NRDC believes that because detection in ground water supply indicates that migration through soil is occurring, registration amendments must be triggered by detections in either current or potential drinking water, at levels well below the GRGL.

6. **S. 1516 Does Not Require Government to Respond to Site-Specific Pesticide Contamination When Pesticide Detections Exceed Fifty Percent of GRGLs.** Under S. 1516, site-specific responses are required only where pesticide concentrations exceed health-endangering levels in actual drinking water sources. This provision literally provides too little, too late.

7. **S. 1516 Does Not Require the Development of State Ground Water Protection Plans.** As mentioned above, states must play a central role to ensure the protection of underground sources of drinking water. S. 1516 does not provide an adequate state role, nor does it provide adequate funding.

IV. LIABILITY EXEMPTIONS FROM ALL FEDERAL ENVIRONMENTAL LAWS FOR AGRICULTURAL PRODUCERS.

The liability provision, at section 2501 of Senate Agriculture Committee's reported version of S. 1516, would modify any Federal statute imposing liability on agricultural producers for all pesticide use. Neither the provision itself nor the Senate Agriculture Committee Report[48] explains why any change to liability provisions was deemed advisable. Proponents of this amendment have never provided evidence that federal environmental laws or other any other federal statutes pose an onerous or unfair burden for farmers. Indeed, a representative of the American Farm Bureau Federation, the major proponent of the liability provision, stated at a public meeting last spring that the only actual liability problems farmers have experienced result from state, not federal, law.[46]

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[48] Senate Committee on Agriculture, Nutrition and Forestry, Report on S. 1516, Federal Insecticide, Fungicide and Rodenticide Reform Act of 1988, May 13, 1988, S. Rpt. 100-346, pages 90-91.

NRDC believes that the liability provision in S. 1516, like those considered and rejected by the Senate in the 99th Congress, raises more questions than it answers.

Even though this provision has gone through numerous incarnations in this Congress and the last, the provision is still imprecisely drafted. The consequence of allowing such a provision to become law would be numerous years of litigation to find out what it all means. For example, the provision apparently eliminates all liability for farmers if the application of pesticides "as certified by the agricultural producer to the Administrator" was in compliance with labeling and applicable law.[47] The provision lists various required contents of the certification: the grower must identify the date, time and location of application and the name of the pesticide used. But the provision in no way provides for the very real possibility that the certification will be inaccurate or in error. Moreover, the provision seems to equate identification of the date, rate and place of application and pesticide which was used with proof that labelling instructions and other applicable laws were, in fact, obeyed.

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[46] Mark A. Maslyn, American Farm Bureau Federation, meeting of the Newspaper Farm Editors of America, April 27, 1987.

[47] S. 1516, section 2501(a)(1).

Every grower admits that some growers violate label requirements. No one argues that those who violate the law should receive the benefit of a liability exemption. Nevertheless, there is considerable uncertainty under the terms of S. 1516 when or if growers would ever bear liability for pesticide uses. The provision presents the liability waiver, but then adds the caveat, "unless the agricultural producer acted negligently, recklessly, or with the intent to misuse the pesticide."[48] Is certification irrelevant to the question of whether the grower was negligent? Is any violation of label requirements or other law deemed to be negligence per se? The provision does not say. And nowhere does the provision identify who bears the burden of proving negligence, recklessness or misuse, nor does it explain in what forum such a determination is made. Does the Senate Agriculture Committee intend to insulate even growers who improperly apply pesticides? We certainly hope they do not. However, the provision may easily be read to provide immunity for all growers who "certify" that their actions accorded with labeling and law, regardless of whether they in fact were legal and prudent.

The liability provision grants immunity for all growers whose "application" of the pesticide was certified as lawful for all liability stemming from the "release or threatened release" the pesticide into the environment.[49] Unfortunately, the scope of the terms "application" and "release" are significantly different. This difference may lead to an exemption from liability from growers who were clearly violating laws in their handling or use of dangerous pesticide products.

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[48] Id.

[49] Id.

The term "application" is defined in S. 1516 as including "mixing, loading, applying, storing, disposal, and farm-to-farm transport of the pesticide."[90] "Release" is defined in the Superfund law as:

> "any spilling, leaking, pumping, pouring, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substances or pollutant or contaminant) . . . ."[91]

The consequence of the disparity in the scope of these terms is that a farmer may be granted a exemption for all environmental damage, even in an instance where some aspect of his or her handling or use of the pesticide was illegal or negligent or worse. For example, if the farmers only illegal or negligent behavior occurred in the course of transporting the pesticide within a farm, S. 1516 would grant the farmer complete immunity from liability for the released pesticide. Even if the consequence is pollution of an aquifer serving an entire community, because the term "application" excludes on-the-farm transportation of the pesticide, the negligent grower would be absolved of all liability so long as he or she "applied" the pesticide lawfully.

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[90] Id.

[91] The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601(22).

Casting confusion over the liability provisions of the major federal environmental statutes may have been no individual's intention, but surely it would be the consequence of such an amendment. Liability was one of the crucial points of disagreement between the House and Senate which precluded enactment of FIFRA reform legislation in the 99th Congress.[52] NRDC believes that the best resolution to the liability controversy is to drop the entire provision.

The application of pesticides according to label requirements and in a responsible, non-negligent manner is essential to avert unnecessary and excessive environmental contamination and human exposure. Both registrants and growers must have central roles in ensuring that agricultural pesticides are used in the safest possible manner.

Growers' concerns about potential liability for pesticide use have not resulted from federal environmental laws which S. 1516's liability provision would amend. However, reports issued by the Congressional Research Service and the General Accounting Office indicate that in theory there may be some instances in which farmers who have properly applied pesticide could be required to take action.[53] GAO stated, "We conclude that, under current law, the potential exists for farmers who have properly applied a pesticide to be required to undertake abatement-type actions, and to incur the expenses thereof, in an emergency situation."[54] However, neither the GAO nor the CRS analysis identified instances in which federal environmental laws have been invoked to impose any obligation on growers. Both reports identified only narrow, exceptional circumstances under which EPA may have authority to order growers to take abatement action. Why should Congress embark on a complicated, contentious course to further narrow a never-used, theoretical authority?

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[52] Public interest organizations, including NRDC, opposed the 99th Congress proposal advocated by the American Farm Bureau Federation which became part of the 1986 House-passed bill. On October 6, 1986, the Senate adopted an amendment by Senator Durenberger which deleted the farmer liability exemption similar to that included in the House bill.

However, if Congress determines to provide some form of exemption for growers who handled and used pesticides lawfully and prudently, NRDC believes the Committee should insist that any amendment relieving growers of potential liability explicitly identify who will be responsible for addressing the environmental or health damage which stems from legal pesticide use. NRDC will support a narrow, well-crafted liability exemption for growers only if the amendment shifts liability from farmers to registrants. Registrants, it must be remembered, created the labelling and sold the pesticide with the assurance that use according to labelling would not result in damage.

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[53] James F. Hinchman, General Counsel, the General Accounting Office, letter to Senator Patrick J. Leahy, Chairman, Senate Agriculture Committee, March 14, 1988; and George Costello, Legislative Attorney, Congressional Research Service, American Law Division, memorandum concerning liability of agricultural producers for pesticide use, March 14, 1988.

[54] Hinchman, page 1, op. cit. Emphasis added.

Absent such an explicit shift of liability from non-negligent growers to manufacturers, rural residents are very unlikely to obtain cleanup when ground water is contaminated by the lawful use of agricultural chemicals. Cleaning up contaminated ground water and providing alternate water supplies for rural residents should be the responsibility of those who made and sold the pesticide in cases where application was prudent and lawful. Neither Superfund nor any other government program was designed, or adequately funded, for such cleanup. The farmer liability exemption now in S. 1516 would result in rural residents, including farmers, having no clear recourse when pesticide contamination occurs because of lawful use.

If the Committee decides to craft some form of liability exemption for growers, NRDC urges the Committee incorporate provisions to: 1) provide incentives for growers to use pesticides not just legally but cautiously, 2) encourage registrants to disseminate reliable, up-to-date and practical information which will help growers improve how they apply pesticides, 3) shift any liability for which growers are absolved to registrants, and 4) ensure that enormous farms with both expertise and resources to implement best pesticide use practices are not entitled to any liability exemption. The Committee can accomplish the first three goals by including a liability transfer and requiring the agricultural producers to bear the burden of proof that any "release or threatened release" of the pesticide was in compliance with labelling and applicable law.[55]

The Committee should also consider limiting the availability of any pesticide liability exemption to farms with annual sales of agricultural commodities less than $250,000. A recent United States Department of Agriculture, Economic Research Service, publication indicates that only 3.9% of farms nation-wide exceed this limitation.[56] However, these few giants were responsible for 47.7% of sales.[57] A regional analysis indicates that only one region has more than 10% of farms with sales above the cut-off; 11.7% of California farms exceed $250,000 in annual sales, and these largest farms are responsible for 84.3% of California farm sales. The following figures represent the percent of farms in the remaining eight regions identified by USDA with annual commodity sales above $250,000 and--in brackets--the share of total regional sales from farms with sales above $250,000 per year:

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[55] This could be accomplished by modifying S. 1516, as reported by the Senate Agriculture Committee, Calendar No. 647, at page 404, lines 8-17 to read as follows:

"shall not be imposed on the agricultural producer involved in the release if, as shown by the agricultural producer, the release or threatened release was in compliance with labelling and applicable state and federal law, unless the agricultural producer acted negligently, recklessly, or with the intent to misuse such pesticide, but liability shall instead be imposed on any registrant or other responsible parties."

[56] Matthew G. Smith and Fred Hines, United States Department of Agriculture, Economic Research Service, Regional Characteristics of U.S. Farms and Farmers in the 1980's, March 1988, page 10.

[57] Id.

Wisconsin-Missouri: 2.6% [22.7%];
Core Corn Belt: 4.9% [32.8%];
Delta: 9.6% [54.5%];
Eastern Highlands: .5% [17.0%];
Great Plains: 4.9% [54.2%];
Western Corn Belt/Northern Plains: 5.3% [36.6%];
Coastal Plains: 5.8% [48.1%]; and
Southern Piedmont: 3.1% [48.7%].[58]

Average annual farm sales in 1982 was $58,857.[59] If Congress were limit the exemption to growers with sales below $250,000, the exemption, if properly drafted, could ensure that smaller growers carefully abide by labelling while ensuring that the largest agricultural enterprises have strong incentives to develop expertise and design improved management practices to prevent injury and environmental degradation.

Thank you for the opportunity to present testimony to the Committee. I will be happy to answer any questions.

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[58] *Id.*

[59] *Id.*

ENVIRONMENTAL POLICY INSTITUTE

Testimony of
Velma M. Smith
on behalf of the Environmental Policy Institute

before the

Senate Committee on Environment and Public Works

June 10, 1988

The Ground Water Safety Act
S. 1419
and
The Federal Insecticide, Fungicide and Rodenticide Reform Act
of 1987
S. 1516

Mr. Chairman, Members of the Committee, I am Velma Smith, Director of the Environmental Policy Institute's Groundwater Protection Project. On behalf of the Institute, I thank you for this opportunity to testify.

As I am sure each of you knows well, groundwater pollution is a pressing national problem, with every state now reporting instances of contamination. The sources of that contamination are diverse and numerous. In fact, the National Academy of Sciences has noted that "virtually every activity of society" may affect groundwater. [1]

This Committee has been at the forefront of Congressional efforts to better understand and thus control these threats to the vital national resource which serves as the drinking water supply for some 117 million

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[1] Ground Water Quality Protection: State and Local Strategies, 1986.

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Americans. Members of this Committee have lead the fight for regulation of groundwater threats from leaking tanks and disposal of hazardous ash and have developed an impressive and important proposal for improved groundwater research. In addition, this Committee has held extensive hearings on options for comprehensive groundwater protection, and those hearings have helped to move forward the national debate on this important issue.

Today, you focus on yet another specific aspect of the overall threat to groundwater: agricultural chemicals. And as you debate legislative proposals in this area, we are sure that you understand that the policy decisions made in this Congress in regard to agricultural chemicals may well set precedents for how the nation moves on other threats to groundwater. Thus, we applaud your effort to participate with the Agriculture Committee to shape an effective groundwater element to the FIFRA Reauthorization.

A little over a decade ago, the general public -- led by the experts -- naively accepted the premise that water sources would not be in jeopardy from contamination by "properly applied" agricultural chemicals. Groundwater pollution was generally thought to be a concern related primarily the the improper disposal of pesticide wastes. But by late in the 70s, cases of groundwater contamination linked to normal field applications of chemicals had been found in several states. [2]

According to one researcher,

> Groundwater contamination from field-applied pesticides was almost entirely unexpected, particularly since the pesticides being found in groundwater included those generally assumed to degrade or volatilize rapidly. When the first incidents were documented,

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[2] See, for example, Patrick W. Holden, Pesticides and Groundwater Quality: Issues and Problems in Four States, National Academy Press, 1986.

> pesticide manufacturers and regulatory officials had little pertinent baseline data on groundwater quality to assess the scope of emerging problems. Response to positive findings were necessarily ad hoc.[3] [Emphasis added.]

In 1988, a vastly different picture of the scope and the root of the problem has emerged. From New York's populous Long Island to the Big Spring Basin of Iowa, the signs are clear: agricultural chemicals applied in accordance with EPA registration requirements are making their way into groundwater. Monitoring programs are far from exhaustive and the national database remains patchy, but EPA now states that "...enough information has been reported to indicate the problem is widespread in certain parts of the country."[4]

Stories of EDB in Florida and California wells, DBCP in Hawaii and Maryland, and aldicarb in Wisconsin have been recounted and reenacted throughout the U.S. Only last summer, EPA produced a document which noted that "...a total of 20 different pesticides had been detected in ground water in 24 states where the source of the contaminant was most probably...agricultural application...rather than...spills or other point sources of the pesticides."[5] Now -- after additional review of state-collected data -- EPA has, in personal communications and Agency briefings, revised those numbers upwards to more than 60 pesticides in the groundwater of over 30 states.[6]

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[3] Holden, cited above.

[4] U.S. EPA, Office of Pesticides and Toxic Substances, Proposed Agricultural Chemicals in Ground Water Strategic Plan, 1987.

[5] U.S. EPA, Office of Pesticides and Toxic Substances, Agricultural Chemicals in Ground Water Strategic Plan, June 1987.

[6] EPA has not, to our knowledge, released an "official" revised recount. It appears that these numbers may remain in flux for several reasons. Ongoing monitoring programs or one-shot sampling surveys are being initiated in a number of states, and the database available for review is increasing over time. In addition, EPA is making an effort to distinguish those detections

Thus, the myth that "properly applied" pesticides will not pollute groundwater appears to be largely debunked.

At the same time that pesticides detections in groundwater have come to be commonplace, we also see a growing body of evidence that points to adverse human health effects from the long-term exposure to low doses of these chemicals.

Since pesticides by their very nature are poisons, it comes as no surprise that exposures to large doses of these chemicals can have severe, acute consequences on human health. In the arena of long-term exposure to low doses of these or any other chemicals, however, the precise extent of the human health threat is far less certain and far more difficult to predict. The emerging data about possible links to chronic disease, however, is troubling indeed.

For example, according to researchers at the National Cancer Institute's Environmental Epidemiology Branch,

> Evidence linking pesticide exposures and human cancer comes primarily from studies of occupationally-exposed populations.... Results from these occupational studies are strongly suggestive of excess lung cancer among pest control operators and several hematopoietic malignancies (leukemia, multiple myeloma, and non-Hodgkin's lymphoma) among farmers exposed to a variety of pesticides.[7]

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related to normal agricultural practice from those related to spills, disposal or other point sources. This is a burdensome and time-consuming process and one which is apparently subject to various interpretations -- thus resulting in difficulty in pinning down precise counts.

[7] Kenneth P. Cantor, Aaron Blair and Sheila Hoar Zahm, "Health Effects of Agrichemicals in Groundwater: What Do We Know?" in Agricultural Chemicals and Groundwater Protection: Emerging Management and Policy, proceedings of a conference held October 1987, published by the Freshwater Foundation.

These particular researchers conducted an epidemiological study of white males in Kansas and concluded that farmers who used herbicides and insecticides routinely had an elevated risk of non-Hodgkin's lymphoma compared with nonfarmers. Further, the more pesticides that a farmer used, the higher was his risk of cancer. Earlier studies in Wisconsin, Nebraska, Iowa and Minnesota reportedly found similar links between pesticide use and certain types of cancers. [8]

In addition to cancer, other chronic ill effects have also been associated with exposure to agricultural chemicals. Again according to the National Cancer Institute researchers, studies have uncovered either suggested or proven links of pesticides or nitrates to birth defects, infertility, Parkinson's disease, other impaired function of the reproductive, endocrine, nervous systems, and other problems. For example, a small study in Wisconsin conducted by the Centers for Disease Control and the Wisconsin Division of Health offered preliminary but disturbing indications that exposure to extremely low levels of the insecticide aldicarb may adversely impact the immune system. [9]

It is against this backdrop that the public -- including the farming public -- has understandably become concerned with the detection of pesticides in drinking water sources. [10]

The Environmental Policy Institute is hopeful that this Committee will recognize this growing concern and the facts which support it and that you will respond with fundamental reforms to the Federal pesticide regulatory framework. We believe that basic reforms are necessary, since the current framework is clearly not preventing the contamination of groundwater resources.

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[8] See "Pesticides: Balancing Risks and Benefits" in Health and Environment Digest, February 1987 and Des Moines Sunday Register June 23, 1985 article headlined "Cancer linked to pesticides in early study."

[9] See above-cited issue of Health and Environment Digest.

[10] See, for example, attached article from Des Moines Register, "Poll: Iowans Want Limits on Ag Chemicals."

Undeniably, your task is not an easy one.

A commentary in the Journal of Soil and Water Conservation last year noted that "...groundwater pollution is probably the major environmental problem facing agriculture over the next 10 years."[11] Likewise, if our experience with nonpoint source pollution in general is any indicator, it appears that one of the greatest challenges of the overall groundwater problem may indeed be the agricultural sources of contamination.

But we simply cannot afford a "wait and see" approach, which stalls each time it encounters tough choices. A reasonable dose of regulation and action now may save us from the day in which our groundwater cleanup bill has ballooned to huge proportions and the general public has lost all level of trust in the chemical manufacturers, the pesticide users and the system of government that purports to protect them. Surely, at that point the options before us will be fewer.

We believe that S. 1419, the Ground Water Safety Act, offers a good approach for amending the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) to address groundwater contamination and groundwater protection. In our view, the passage of S. 1419 can work to the benefit of the general public and ultimately to the pesticide user.

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[11] Article entitle "The Big Seep" by Ken Cook, July-August 1986.

We hasten to add, however, that amendments to FIFRA alone will not be sufficient to address the complex problems of agricultural chemicals in groundwater. Later in this testimony, I will offer other recommended actions to protect groundwater, but for now I would simply like to contrast S. 1419 with the groundwater provisions which were offered in the Agriculture Committee by Senators Helms and Heflin and are now embodied in S. 1516.

EPI holds that the so-called groundwater protection approach in S. 1516 will yield one major result: it will set in statute the triage-type response to groundwater contamination used for early pesticide detections -- aldicarb in New York and Wisconsin, DBCP in California, for example. In those instances, a crisis response was perhaps necessary because the problems had not been anticipated. But it is this reactive stance that has left water users frustrated and disillusioned with government protection, left farmers with the bitter taste of public confrontation and left pesticide manufacturers with public relations nightmares in particular communities.

In terms of prevention of groundwater contamination by pesticides, S. 1516 is little more than an illusion.

How is it that we can paint so stark a contrast between two bills which have, in fact, many seeming similarities? Although S. 1419 and the Helms-Heflin provisions in S. 1516 have in common certain section headings and structures, their differences reflect major differences in attitude and policy. I will elaborate with comments on specific sections of the two bills.

Determination of Leaching Pesticides

Both bills direct EPA to determine what pesticides are likely to leach into groundwater. The bills then focus on those chemicals. S. 1419 distinguishes itself from S. 1516 even in this first section, since it incorporates a mandate for the manufacturers of these pesticides to develop appropriate "best management practices" aimed at alleviating the leaching problem to the greatest extent practicable. Latter in the bills, this same proactive versus reactive theme is repeated, when S. 1419 calls for state plans to protect both groundwater and surface water from pesticide contamination. Similar provisions are absent from S. 1516.

Collection of Data

Both S. 1419 and S. 1516 address the pressing need for more data on the extent and the nature of the pesticide contamination problem by requiring the registration of the pesticide to share information on detections in groundwater with EPA.

But when it comes to monitoring authorities, S. 1516 stops far short of what is needed. S. 1516 borrows from existing FIFRA language and simply attempts to clarify what some believe to be an existing EPA monitoring authority: the authority to require a registrant to conduct nationwide, representative monitoring that will enhance the understanding of how individual chemicals actually behave in the field.

S. 1419 goes beyond that authority with what we would consider a conservatively drawn authority for EPA to compel areawide monitoring in certain circumstances.

While we would certainly prefer and recommend that S. 1419 be amended to expand upon the circumstances for areawide monitoring, we would argue that, at a minimum, these strictly limited authorities must be included to make a groundwater provision workable. In fact, we are convinced that if EPA cannot compel a pesticide registrant to undertake areawide monitoring in certain cases, then the remainder of the provision will be useless.

Afterall, common sense tells us that when a pesticide is detected in the groundwater supply of one family in a given area, others in the area will be justifiably concerned about their own wells. Those citizens will and should expect regulatory officials to take action to test their wells. Common sense and even a passing familiarity with the basics of groundwater flow also tell us that site-specific monitoring is necessary to determine the extent and movement of a contaminant plume -- regardless of how many drinking water wells are threatened.

The chemical industry has in previous discussions objected to the areawide monitoring requirements on the grounds that such monitoring is costly. While we disagree with their objection, we fully agree with their point on costs, and that is why we press this issue.

Monitoring to determine both the likelihood of contaminants moving into water supplies and the prognosis for the effectiveness of any abatement actions will be expensive. And certainly no Member of Congress needs to be reminded that Federal resources to pay for this monitoring will be limited. But the fact of limited Federal or state resources does not diminish the need for testing. If government, and thereby the general taxpayer, cannot be expected to pay the full cost of monitoring, that leaves three other possible funding sources: the water user or purveyor, the farmer, or the pesticide maker.

We are not convinced that the imposition of monitoring costs on water users -- beyond those costs that will be borne by public water systems for testing in compliance with the Safe Drinking Water Act -- is either reasonable or fair. Nor are we convinced that individual farmers can be expected to foot this monitoring bill. The registrant, in our view, is the party that can and should incorporate such monitoring into its cost of doing business.

This point of data collection is one which may well justify an improvement in S. 1419 as well. Review of pesticide incidents in the states shows clearly that the lack of data can complicate and severely hamper governmental response. Holden cites a veteran engineer in California who admitted that regulatory agencies were "groping in the dark," hampered by a lack of data. [12] Holden and others have pointed out that accurate historical records of pesticide use are frequently not available, but without such records it may be extremely difficult either to anticipate the scope or likely intensity of a problem in a particular area or to design an efficient monitoring network. For these reasons we urge this Committee to consider improving upon S. 1419 by adding a specific requirement for record-keeping on pesticide use.

Setting of Groundwater Quality Standards

In the area of standards, S. 1419 and S. 1516 again bear some similarities but depart distinctly on important points. Both bills use water quality standards -- called Groundwater Residue Guidance Levels or GRGLs -- as triggers for response to contamination.

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[12] See above cite.

Interestingly perhaps, both bills appear to agree that where EPA has not already issued a drinking water standard under the Safe Drinking Water Act -- and at this moment that is the case with most pesticides -- EPA is to set a GRGL based on the level at which there would be no adverse effect on human health, including an adequate margin of "safety." However, EPA is, hopefully, fast developing drinking water standards, and when those do exist then, oddly, the two bills differ significantly, with S. 1516 inexplicably departing from the no adverse effect standard.

Under the Federal drinking water law, as members of this Committee well know, there is a two-pronged standard-setting process. First, EPA must set a Maximum contaminant Level Goal or MCLG, reflecting the level at which no adverse effect on human health would be anticipated. Note that this language is the same as the standard I just mentioned. EPA's policy in this regard -- which has held up to court challenge -- provides for the MCLG to be set at zero when there is no known threshold of safety for chemical exposure. Such is the case with carcinogens.

The drinking water standard which is enforceable in terms of public water suppliers is not the MCLG, however. The enforceable standard, the Maximum Contaminant Level or MCL, is set "as close as feasible" to the MCLG. In looking at this feasibility question, EPA is to consider the levels of contamination that may be found in reasonably clean water supplies, the technologies that are available for removal of the contaminant and the affordability of technologies to public water suppliers.

Thus, the MCLs are not necessarily ideal from a health-based perspective. They reflect, instead, what appears to the be the best that we can expect our public water suppliers to do in terms of treatment at the time at which the standard is set. As technologies and costs change over time, the law provides for the MCLs to be revised to more closely track the MCLGs -- hopefully to eventually mirror the MCLGs in all instances.

So while the MCLG is clearly a health-driven standard, the MCL can, in certain instances, be driven more by cost considerations than by health. While a compromise of some sorts between health considerations and cleanup cost may be necessary within the framework of drinking water regulation, simply to assure that people have access to water supplies, such a compromise is totally out of place in a program designed to prevent pollution of water in the first instance.

Unfortunately, however, the authors of S. 1516's groundwater provision appear to view this distinction in the Safe Drinking Water Act as a convenient rationalization for weakening the appropriate trigger levels for pollution prevention. They choose the MCL, not the MCLG as the provision's trigger standard.

S. 1419 chooses the MCLG and thus retains consistency of approach when there is an existing water standard and when there is not. It chooses a standard meant to prevent any anticipated adverse health effect. It does make a compromise on this standard in one set of circumstances, however.

When an MCLG is set at zero, S. 1419 allows EPA to use the MCL if the MCL assures that those exposed will not be subjected to more than a "negligible risk" of harm. This, in our view, is treacherous ground, for the concept of negligible risk is exactly that -- not merely a matter of calculus but a concept that embodies critical value judgements as well as scientific data.

Our clear preference would be to use the MCLG in all instances -- as in the case of one House version of the provision, H.R. 3174. However, if this Committee determines that some alternative to the zero MCLGs is necessary, then we would strongly urge a couple of cautions.

First, Congress should recognize that determinations of negligible risk are, in large part, subjective value choices. Congress should recognize further that EPA has made in the past and, without direction, would likely continue to make certain of these choices in distinct conflict with public sentiment -- exposing people to involuntary risks on the order of 1 in 10,000 or 1 in 100,000 from a single chemical alone. And those risks are to be borne by people with EPA's sanction regardless of the multiple chemical exposures which are encountered in real life.

Thus, Congress must limit EPA's discretion in its selection of negligible risk levels. At a minimum, Congress should assure that supposed negligible risk numbers do not exceed a 1 in a million risk factor. And in doing this, Congress should work to assure that EPA conforms with both the spirit and the letter of such intent; EPA should not be allowed to simply readjust certain assumptions and calculations in a risk assessment in order to meet the 1 in a million target. Conservative risk models should be specified, and Congress must be prepared to remain undaunted in its oversight of the actual implementation of such a provision.

Secondly, there must be no implication that Congress or the Agency will equate "negligible" risk with "acceptable" risk or that the existence of such standards convey a "right to pollute." Rather, our aim should be to strive for the elimination of pollution, and the first step in that direction is a decision that "avoidable" pollution is indeed unacceptable.

EPI believes that Congress wisely recognized such a premise in its action of TBT boat paint -- a particular pesticide that Congress chose to pull from the mire of FIFRA for statutory rather than regulatory action. In that instance, the availability of a reasonable alternative to TBT to control the growth of barnacles on boat hulls, coupled with troubling data on the buildup of TBT in the aquatic ecosystem, led Members of Congress to decide that it was prudent to ban the use of TBT on certain boats. Congress did not decide to wait for ironclad proof of oyster, fish and other aquatic life declines. Instead you decided that the risks of using TBT on small boats were simply not necessary.

We believe that S. 1419, with its requirement for the development of best management practices to "prevent, to the maximum extent practicable, the potential for the pesticide to leach into ground water," helps to foster this practical approach to pollution prevention. Indeed, it offers the seeds of what could be an effective "waste reduction" program for pesticides that may the environment as well as the farmer's cash flow.

Determining When and How to Respond to Pesticide Contamination

In our view, the questions of how and where EPA will use the GRGLs to respond to groundwater contamination are the most difficult and most important aspects of this entire debate.

Again, structurally there are some superficial similarities between the two bills. Very generally speaking, each borrows rather loosely from the State of Wisconsin's groundwater protection scheme and its use of "preventive action limits." Under the bills, the detection of certain percentages of the GRGLs triggers a response action by EPA to:

> (1) amend the pesticide's registration, if certain pesticide detections are found in several localities, or
>
> (2) in the case of detections at individual drinking water wells, to inform the appropriate state and provide the state with the opportunity to act or, in the absence of state action, take direct site-specific action itself.

But there are key differences between S. 1419 and S. 1516 in terms of how each uses this general framework.

A careful reading of the language of S. 1516 leads us to the conclusion that EPA and the states will not be compelled to take appropriate response actions until they are able to demonstrate that contamination will exceed health-threatening levels in currently used drinking water supplies. A comment about horses and barn doors may be appropriate here.

We also conclude that S. 1516 will saddle EPA with a data-gathering burden of immense and undoable proportions. And further, we find the S. 1516 promises to be fully unenforceable.

S. 1419 avoids the problems of S. 1516 in several important ways:

- Defining potential sources of drinking water broadly enough to protect currently used aquifers and aquifers that have the potential for use in the future -- without making EPA or the states make crystal-ball determinations of future water needs.

- In terms of promoting the intended preventative aspects of the registration amendment authority, treating current and potential drinking water supplies as they occur in nature -- as one resource, not isolated and static elements.

- In terms of preventing human health problems and anxiety, requiring action before water well testing indicates that health standards have been exceeded -- in other words, designing the alarm system to sound at the detection of smoke rather than flames.

More specifically, S. 1419 chooses a definition of "potential source of drinking water" that is consistent with current practice in EPA's Office of Drinking Water -- capturing an aquifer or its portion which is either serving as a drinking water supply or which, by definition of its total dissolved solids content, could be treated for drinking water use.

S. 1516, on the other had uses a definition which could allow for usable groundwater to escape protection. It does not pin down the quality considerations that might kick a groundwater source out of the universe to be protected. Thus, one might argue under S. 1516, for example, that it is unnecessary to protect from pesticides any groundwater in Nebraska's Platte River Valley, since that area has documented problems with nitrate contamination.

S. 1516 also incorporates a vague reference to depth and hydrogeological conditions that could again be used to exclude perfectly usable groundwaters from protection. This apparent loophole for exclusion of shallow groundwaters from protection is included despite the fact that shallow groundwater is and may well continue to be the only practical source of water for many rural families. [13]

Overall, we believe that S. 1516's definition of potential drinking water really provides a non-definition that will resurrect fundamental policy questions at the point at which each specific contamination case is encountered -- not a route that promises much in the way of public trust or acceptance.

S. 1516 further amplifies this definition problem with a bifurcated approach to pesticide registration amendments. This is particularly unfortunate, since an innovative and aggressive use of registration amendment authority may hold the greatest potential for bringing about a new generation of pesticides and pest control practices compatible with a national goal of groundwater protection.

We can only conclude that the two-track approach of S. 1516 -- with one set of provisions for registration amendments in response to contamination of currently used drinking water and another set of provisions for use when potential drinking water is polluted -- is designed to limit and stymie rather than encourage Agency action in this area. We draw this conclusion for several reasons.

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[13] See, for example, the testimony of George Hallberg, Iowa Department of Natural Resources, April 29, 1987, before the Senate Committee on Agriculture.

S. 1516 is grounded in a totally untrue assumption: It *assumes that EPA* -- faced with potentially thousands of detections -- *will be able to reliably predict a precise concentration of a pesticide in groundwater at a point at which a drinking water well intersects an aquifer.* In looking at threats to potential drinking water sources, EPA is further charged by S. 1516 with making predictions regarding *when* groundwater is likely to be used.

To accomplish this task, S. 1516 provides EPA little in the way of specific monitoring authority but it does offer a presumption that pesticide standard exceedances will occur if the pesticide is detected at 30 percent of the standard, unless the relevant data indicate otherwise. Certainly a weakly stated presumption on which to rely in what will likely be marathon battles of the experts over a multi-dimensional set of variables. (Please note that this same presumption should be improved in S. 1419 as well.)

One researcher perhaps states the problem of prediction most directly. Writing in *New Hampshire Turf Talk Newsletter,* former EPA scientist Stuart Cohen last year answered the question: *"Can one reliably predict pesticide concentrations in ground water?"* with this response:

> *No*. *It will be a long time before one [c]an make reliable quantitative predictions of pesticide concentrations in wells following normal use.* However, it is possible to make qualitative and semiquantitative predictions based on lab and field data and using expert judgement and mathematical modeling. One can make predictions which are probably within one to two orders of magnitude of truth...with good lab and field data and a limited set of monitoring data. [Emphasis added.]

Cohen then goes on to note that "good monitoring data" will increase the reliability of predictions, but such data is "usually lacking." [14]

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[14] See Winter 1986/87 issue published by the Golf Course Superintendents Association of New Hampshire.

Other experts echo these cautions about predictive abilities. For example, Iowa's Hallberg in discussing the dilemma presented by agrichemical contamination of groundwater notes that

> we "technocrats" did not fully understand some important aspects of how water and chemicals moved through soil and materials. The preferential flow of water and chemicals through materials has become an important topic for research. But our lack of understanding flaws most current models we would use try and foresee problems.[15]

Still another notes that "current models offer no precise method of predicting the depth of movement of pesticides in soil or the concentration at depth in the field. [Emphasis added.] This writer goes on to state that the "use of simulation models in field situations is in an incipient state."[16]

And, in the words of the noted groundwater expert, John Cherry,

> [t]he current paucity of information on the chemical and biochemical behavior of organic compounds in groundwater is a serious liability in the assessment of future changes in groundwater quality....[17]

This is not to say that EPI concludes or any of the above authors infer that attempts to predict pesticide movement in the subsurface are not useful and necessary. On the contrary, such attempts must be made, but they must be made with an honest recognition that this area of science, though rapidly advancing, is still constrained by unknowns, uncertainties and immense data needs.

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[15] See paper entitled "Facing the Dilemma: Where Do We Go From Here?" in Freshwater Foundation conference proceedings cited above.
[16] See Holden, cited above.
[17] John A. Cherry, Robert W. Gillham and James F. Barker, "Contaminants in Groundwater: Chemical Processes" in Studies in Geophysics: Groundwater Contamination, National Academy Press, 1984.

S. 1516, with its demand to predict pesticide concentrations not simply in an aquifer segment, but at precise points in an aquifer, simply ignores these scientific limitations and the resource limitations of EPA. It gives EPA prediction mandates that are far too ambitious -- and, perhaps even more importantly, unnecessary.

S. 1419, on the other hand, calls for EPA to use the science but not to stretch it beyond its capabilities and well beyond EPA's resource levels. Rather than approach this dilemma simply as a gargantuan extrapolation puzzle game, Senators Durenberger and Leahy, in S. 1419, offer a dose of practicality and common sense.

Under S. 1419, detection of certain concentrations of a pesticide in groundwater in several localities is recognized as an early symptom both of specific problems in those locales and of possible broader problems. These detections are to be interpreted as cautions that EPA's registration requirements may not be sufficient to protect groundwater. In other words, the prescription for use which EPA has developed may need reevaluation and alteration to keep more of the pesticide in question performing its intended function in the field and less of it travelling -- wasted -- into the groundwater resource.

The Ground Water Safety Act requires EPA to use predictive science but it also allows the Agency to save some of its resources for carrying out and then acting on these sorts of reevaluations. The tools for implementing improved means of mitigating groundwater pollution run the gamut from training of applicators and restrictions on the time or frequency of application to potential use restrictions on individual chemicals or geographically-based use restrictions. While these same tools are provided in S. 1516, the other aspects of that bill make it unlikely that EPA will have opportunity or occasion to employ them.

Experience tells us that, with the opportunity to reevaluate and represcribe practices on the basis of new field data, it may be possible to achieve significant reductions in pollution.

For example, the University of California and the Central Valley Region Water Quality Control Board began work with rice growers when the herbicides Bolero and Ordram were discovered in drinking water in the Sacramento area. As a result of these efforts, concentrations of the pesticide Bolero were reported to be reduced by one-half at a time in which the concentrations were expected to peak. Similarly, after New York began to grapple with detections of aldicarb -- a pesticide which was expected to break down before it reached groundwater -- the Long Island Horticultural Research Laboratory found that "approximately two to four insecticide sprays could be eliminated using a crop rotation that included planting a crop other than potatoes in 1 year." [18]

While for some cases, reduction of pollutant loadings may be relatively easy to achieve, in other situations reduction of leaching may be more difficult or even impossible to achieve. So for certain instances, EPA must have the authorities and the obligation to restrict uses of "bad actor" pesticides either across the board or in certain combinations of soil and hydrologic conditions that promote contaminant transport into groundwater.

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[18] See Holden. Note that the case of the California problem involved discharges of irrigation water to surface water; it is, nonetheless, illustrative of the pollution reduction potential from new and innovative methods of pesticide use and pest control.

Any such decision to cancel one use or several uses of a pesticide may be met with great resistance, but Committee Members may wish to keep in mind the fact that the loss of a particular pesticide does not necessarily imply crop loss or income loss to the farmer. Emerging data on pesticide effectiveness, new farming innovations and old farming practices revisited give hope for a viable American agriculture which is less and less "chemical dependent." [19]

Surely, however, a decision to "write off" a vital resource for human life -- one for which there is no man-made substitute -- would have severe and unacceptable consequences, if not today, then potentially tomorrow. The comments of the American Water Works Association on another issue of groundwater protection -- unrelated to agricultural chemicals -- are nonetheless pertinent to this point:

> Realistically, the protection of groundwater may not be for the protection of the population today. In some cases, we are currently drinking and using the groundwaters whose quality is a function of society's past practices. The goal of groundwater protection strategies must be for the future. We must look at today's actions in terms of their impact tomorrow.
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> Current water use patterns should certainly be addressed in groundwater protection strategies, but regulatory actions should not bias future water use patterns by allowing relaxed standards to be implemented in other areas. [20]

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[19] See, for example, David Pimentel and Lois Levitan, "Pesticides: Amounts Applied and Amounts Reaching Pests," in BioScience, February 1986; Pimentel, "Benefits and Costs of Pesticide Use in U.S. Food Production," December 1978; A. Ann Sorensen, "Integrated Pest Management in the Midwest" in Freshwater Foundation publication cited above, and Brian P. Baker, Agricultural Chemical Districts for Ecosystem Management, paper provided to EPI courtesy of the Cornell University Agricultural Experiment Station, Department of Agricultural Economics.

[20] Taken from comments of the AWWA on proposed EPA regulations pertaining to uranium mill tailings control, specific cite unavailable.

In closing, I would like to borrow from a conference on Agricultural Chemicals hosted by the Freshwater Foundation in St. Paul, Minnesota last fall. Obviously, I cannot presume to speak for farmers, but let me pass on some of the comments which farmers who attended this conference provided.

One farmer from Minnesota made an urgent and emotional plea for action now. Interestingly, he was not a farmer who has himself shifted totally away from chemicals, but he is worried about the implications of chemical detections. Another farmer, noting that the needs and motivations of family farmers may diverge from large corporate farm operations and from ag chemical businesses, warned that the "answer is not to pollute more carefully." A member of the Minnesota Potato Growers Association volunteered that "farmers are willing to adapt."

Mr. Chairman, we are convinced that S. 1419 offers a formula that is measured, is practical and is needed. It will allow us to adapt, and it will set us in the direction of more environmentally sound farming systems. We urge you to press for passage of S. 1419, and we urge you to match that commitment with other efforts in this area, including efforts to

* examine and realign, as necessary, the components of farm policy which may promote, directly and indirectly environmentally -- and economically -- unsound practices;

* strengthen the existing agricultural information-sharing system -- the Land Grant Colleges, the SCS, the Extension Services and the like -- and assure that those entities are equipped to serve the ends of environmentally protective agriculture with the most up-to-date and practical information on recommended practices;

* authorize and fund research and dissemination of research on low or no chemical use farming alternatives and assure that EPA accesses and uses such information in carrying out its regulatory duties; and

- fully -- and quickly -- fund EPA's National Survey of Pesticides in Drinking Water, and then authorize and fund followup monitoring and data collection programs necessary to enhance our ability to predict where pesticide applications may cause problems.

That sort of effort will surely net us much progress on the groundwater protection and public health protection fronts.

I again thank this Committee for its strong interest in and commitment to groundwater protection. We are grateful for this opportunity to testify today, and I would be happy to answer any questions that Members of the Committee might have.

STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION TO THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS WITH REGARD TO GROUNDWATER PROTECTION

June 10, 1988

The American Farm Bureau Federation is a general farm organization with over 3.5 million member families in 49 states and Puerto Rico. Our members produce nearly every kind of crop or commodity grown and harvested commercially in the United States.

Recently the Senate Committee on Agriculture, Nutrition and Forestry reported legislation to reauthorize the Federal Insecticide, Fungicide and Rodenticide Act, generally known as FIFRA. Farm Bureau supports that legislation and believes that it represents a balanced effort to address issues identified by all interests in the FIFRA debate.

Included in that legislation, S. 1516, are two provisions of interest to this Committee dealing with groundwater protection and liability.

With regard to the issue of pesticides in groundwater, we believe it is appropriate for FIFRA to address this issue to establish some process to respond to the problem. Groundwater is very important to agriculture. Over 90 percent of our rural population relies on groundwater as a source of drinking water, and the potential for pesticide contamination is a matter of great concern and discussion within agriculture. While farmers and ranchers agree that we need to protect this resource, there is also a concern that any such effort must recognize the vital role that agricultural chemicals play in modern farming. Farmers and ranchers would prefer not to have to use agricultural chemicals to control weeds, disease and pests, but circumstances dictate otherwise. Until alternative methods of crop protection are commercially practical and until biotechnology products are available, we must be careful not to over react so that the cure becomes worse than the problem.

Another reason that we must be cautious in our response to pesticides in groundwater is because of our limited knowledge of the scope, as well as the causes and effects of the problem. Contrary to growing public perception, most pesticides do not leach. Furthermore, there appears to be increasing evidence that the cause of the problem is generally not the routine field application, but rather a point-source factor such as shallow wells, soil characteristics, improperly cased or cracked wells, or mixing and loading too close to wells.

This all underscores the need for increased information, education and research. This Committee has spent considerable time preparing legislation addressing the research and information component to the problem. Farm Bureau supports and encourages those efforts and has spent considerable effort in similar education, training and water testing programs among our members. In addition, the EPA nationwide pesticides in groundwater survey, which is just beginning, should yield valuable information on the extent of the problem. So we believe that while it is important to respond to this issue, federal policy must be reasonable and in proportion to our knowledge and understanding of the problem.

We have spent considerable time reviewing the groundwater provisions of S. 1516 and S. 1419. We generally prefer the language of S. 1516 over that of S. 1419. Our concerns with S. 1419 center on several aspects.

One major area of debate has been the definition of the resource that we are protecting. We believe that the definition of underground sources of drinking water in S. 1419 is too broad and does not distinguish between different types of groundwater. Consequently it does not appear to allow for flexibility in responding to contamination problems or in establishing priorities for different types of groundwater. We believe that federal groundwater policy should recognize the differing types and uses of groundwater.

Another important issue in the groundwater debate has been the standard of protection. Ideally, groundwater would be without contaminants, and standards would not be necessary. We all recognize however, that there are a number of human activities benefiting society that do impact our environment and thus make standards necessary. We need to set standards that are reasonable and practical but also protective of public health. We have supported the use of the Maximum Contaminant Level (MCL) as the standard of protection for both public and private wells. In the case of carcinogens, we favor a negligible risk standard. We believe that it is not only unnecessary but also would be counter productive to establish a set of standards protecting rural groundwater that is more stringent than those used for public water systems as S. 1419 does. It would result in confusion and overprotection, and also erode public confidence in the safety of their water supply. We believe that the use of the MCL goal as a standard in S. 1419 is inappropriate.

Still another important element in any federal groundwater policy should be a recognition that states have primary responsibility in protecting this site specific and soil specific resource. It is inherently a state issue, and the federal government should not attempt to establish priorities or mandate performance for the states. EPA's primary responsibility should be the establishment of standards and, relating to the subject of pesticide contamination, focus on the authority to register, review and cancel pesticides that pose unacceptable risks.

We also believe that any federal groundwater legislation should directly involve the Department of Agriculture in a full and substantial way. The Soil Conservation Service (SCS), the Agricultural Stabilization and Conservation Service (ASCS), the Agricultural Research Service (ARS), the Cooperative State Research Service (CSRS) and the Extension Service all have outstanding technical, scientific, data collection and outreach capability that should be utilized. In short, they have the site specific and soil specific knowledge necessary to make sound decisions. In our opinion both bills are deficient in this regard.

Directly related to the issue of groundwater protection is that of liability. For some time, we have been seeking a clarification of federal law that establishes the notion that a farmer who has followed federally established pesticide use instructions and not acted negligently or recklessly should not be strictly liable for environmental pollution. We recognize that although no attempt has been made under federal law to hold a farmer strictly liable for groundwater contamination, there have been instances at the state level. While we do not seek to preempt state law, clarification by the Congress of federal environmental statutes would likely be interpreted as a strong signal of congressional intent. Furthermore, it would remove the uncertainty and implicit contradiction in federal law.

We want to reiterate our support for efforts to protect groundwater from pesticide contamination. No other segment of society has more at stake in this issue than the farmer who depends on wells for drinking water and agricultural chemicals to protect his crop investment. Farm Bureau has made extensive efforts to train, inform and educate our members about groundwater protection. We have developed an environmental checklist to be used on farms and ranches, and we have an ongoing well-testing program that has enabled thousands of farmers across the country to test for contaminants.

We believe that there are clear and important roles for the state and federal government, and especially the private sector to play in protecting our groundwater. Above all, however, federal policy on this issue should be protective yet practical and reasonable.

We look forward to working with you and your staff to constructively address areas of mutual concern. Thank you.

Forest Conservation Through Wood Preservation

Statement of John F. Hall, President
American Wood Preservers Institute
On S. 1516
THE FEDERAL INSECTICIDE, FUNGICIDE AND
RODENTICIDE REFORM ACT OF 1988
and
On S. 1419
TO PREVENT GROUNDWATER CONTAMINATION
BY PESTICIDES
Before the Committee on Environment and
Public Works
June 10, 1988

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Mr. Chairman and Members of the Committee, thank you for the opportunity to present the views of the American Wood Preservers Institute (AWPI) on S. 1516, the Federal Insecticide, Fungicide and Rodenticide Act of 1988 and S. 1419, to prevent groundwater contamination by pesticides.

I am John Hall, president of AWPI. AWPI is a national organization representing the wood preserving industry on federal environmental issues. Our members include manufacturers of wood preservatives and wood treaters.

The wood preserving industry is the largest user of pesticides and has a great deal of interest in the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The industry has also experienced a Special Review (formerly called RPAR) which increased our familiarity with the statute.

A. AWPI Requests that Section 216 of S. 1516 "In-Plant Application of Wood Preserving Pesticides" be retained.

During consideration of S. 1516 by the Senate Committee on Agriculture, Nutrition and Forestry, Senator Thad Cochran (R-Miss.) proposed an amendment which added the following section to the bill:

SEC. 216. IN-PLANT APPLICATION OF WOOD PRESERVING PESTICIDES.

Section 3(f) (7 U.S.C 136a(f) is amended by adding at the end thereof the following new paragraph:

> "(4) IN-PLANT APPLICATION OF WOOD PRESERVING PESTICIDES. -- In regulating the in-plant application of a wood preserving pesticide under this Act, the Administrator shall, by label requirement, assure that excess quantities of the pesticide that are collected and contained to be reapplied by the same user in the wood preserving process shall be regulated as a pesticide.".

The Amendment was accepted by the Committee by a unanimous voice vote.

The Committee's Report (Senate Report 100-346 at page 37) on S. 1516, made the following points about this section:

> Section 216 - Disclosure of Certain Ingredients
>
> Section 216 amends section 3(f) by adding new paragraph (4). New paragraph (4) provides that in regulating the in-plant application of a wood preserving pesticide under the Act, the Administrator must, by label requirement, assure that excess quantities of the pesticide that are collected and contained to be reapplied by the same user in the wood preserving process must be regulated as a pesticide.
>
> This section covers the in-plant containment, collection and reapplication of excess pesticide during wood preserving applications only. It is not the intent of the Committee to regulate other activities that are outside the framework of the process of collecting, containing and reapplying pesticides within a wood preserving facility. Excess amounts of pesticide that are collected and contained in a device or system specifically designed to collect drippage so as to prevent contamination and are reapplied by the same user within a reasonable period of time in the wood preserving process shall be treated as a pesticide. Any drippage that is spilled onto the soil is no longer considered a pesticide. The committee wishes to encourage the wood preserving industry to

construct or retrofit facilities designed to minimize the routes of contact between the pesticide and soil, surface water or groundwater. This section does not affect existing authorities under other laws, including the Resource Conservation and Recovery Act 1976 or the Comprehensive Environmental Response Compensation Liability Act.

Why Section 216 of S. 1516 is important to the Nation's Wood Preserving Industry.

Increasingly the nation's wood preserving companies are collecting, containing, and reapplying the pesticide that may drip from treated wood or the processing equipment for a short period following treatment.

All new plants have this capability. Most existing plants are modifying their process to reduce drippage, are installing surfaced drip tracks and drip pads to collect and contain the pesticide, and are, when appropriate, reapplying the pesticide to another batch of wood to be treated.

The pesticide which is collected may go through a filter to remove dirt or wood particles that come into contact with it, and, in the case of oil borne preservatives, pass through an oil-water separator. The dirt, wood particles and water that may be removed in these processes are considered waste by the operator and are disposed of by approved methods.

The pesticide is then returned to the work tanks for application to a future batch of wood to be preserved.

Pesticide as Hazardous Waste

In February, 1987 an internal EPA-draft proposal to further regulate the wood preserving industry under the Resource Conservation and Recovery Act (RCRA) was made available to the public and to the industry.

Among the draft proposals, was the concept that pesticide not retained in the wood was a waste regardless of the intent to collect, contain, and reapply the pesticide.

The wood preserving, industry, recognizing the complexity of current environmental laws applicable to the industry, developed a proposed framework for a Multi-Statute Approach to Regulating the American Wood Preserving Industry. That recommendation was presented to EPA's Office of Solid Waste in September, 1987. (A copy of this proposed framework is attached to be entered into the hearing record).

Industry representatives have also met on numerous occasions with individuals in the Office of Solid Waste (OSW) and with the current project leader to provide information about the industry, its practices, and its wastes and residuals.

To date, there has been no firm indication that the new OSW proposal for regulating the industry's wastes and residuals will not consider pesticide, regardless of its condition and intended use, to be a waste.

Why an amendment to FIFRA

Without any indication from EPA that pesticides are is collected, contained and reapplied is not a waste, the wood preserving industry is seeking to obtain Congressional recognition of the fact that this chemical is still in the treatment process and that it is not a waste until it is no longer in the treatment process.

Water, soil, or wood particles contaminated by the pesticide and not intended for reapplication would be regulated under other appropriate statutes. The Office of Solid Waste currently anticipates that its proposal for further regulation of wood preserving industry wastes will be published in September, 1988.

Potential Benefits of FIFRA amendment

Wood preserving plants would be encouraged to collect, contain, and reapply pesticide. This would further assure protection of human health and the environment, would reduce the volume of pesticide potentially lost, and would reduce potential wastes.

For the wood preserving industry, this approach would provide a system which is both environmentally sound and economically feasible. It assures safe handling of pesticides without the imposition of expensive and unproductive requirements applicable to RCRA controlled wastes.

For the Environmental Protection Agency, this approach would protect human health and the environment, would clarify FIFRA/RCRA authority, would provide a strong incentive for reducing potential waste, and would encourage prompt industry actions well in advance of the time when the anticipated RCRA listings would become effective.

B. AWPI Supports the Majority of the Additional Provisions of S. 1516 (which are not specific to the Wood Preserving Industry) as reported by the Senate Committee on Agriculture, Nutrition, and Forestry.

In the climate of the 99th Congress' FIFRA reauthorization process, AWPI supported the version of H.R. 2482 which passed the House of Representatives on October 16, 1986. This version of the reauthorization represented the "least objectionable" form of amendments to the statute that could have been negotiated in the climate of the waning days of the 99th Congress. AWPI was acutely aware that the provisions of this version of H.R. 2482 were the product of compromises achieved in a unique environment of negotiation between industry and public interest groups.

The House Committee on Agriculture recognized the value of the compromises that produced the October 16 version of H.R. 2482 as they incorporated most of the provisions of this bill into H.R. 2463 which would amend FIFRA. The version of S. 1516 which was reported by the Senate Agriculture Committee, the bill you are considering today, contains many of the provisions of H.R. 2463 which affect the wood preserving industry. AWPI views these provisions of S. 1516 as a final point of compromise. The positions represented by the bill are the most drastic point away from our original views that we can support. Therefore, if these provisions of S. 1516 are viewed as the ultimate solution to the differences among the parties interested in FIFRA, not as a starting point for negotiation on possible amendments, we would again support the portions of S. 1516 which are identical to those of H.R. 2463.

This endorsement is based on several assumptions:

1. Inert ingredients. Although the industry favored a very simple provision providing the EPA administrator with authority to regulate inert ingredients rather than the more elaborate scheme contained in S. 1516, AWPI was pleased that the minimum number of inert ingredients which must be placed on the priority list is not "hard and fast". The introduction of discretion into this process whereby the Administrator does not have to place 50 inert ingredients on the list if he does not find a sufficient number meeting the requirements for listing, is a positive move.

2. Certification and Training. AWPI endorses the following report language which encourages reciprocity among the states which was included S. Report 100-346 at page 51:

> In general, these amendments should be construed in a manner that encourages the states to employ reciprocity for the satisfaction of training requirements in situations where applicators are applying pesticides in more than one state. Reciprocity among the states should be considered an effective means of achieving a consistently high level of competency while encouraging the free flow of commerce across state lines.

3. Cancellation and Change in Classification on Labels:

Section 502, Cancellation and Change in Classification or Labels contains the following provision regarding the request for hearing on cancellation of a person without an economic interest in the pesticide:

> "(E) On receipt of a request for a hearing from a person without an economic interest in the pesticide with respect to which the hearing is requested, the Administrator shall convene such hearing if the request presents a substantial issue of fact, as determined by the Administrator, pertaining to whether such pesticide poses an unreasonable risk to man and the environment.

AWPI accepts the concept of a cancellation hearing request by persons without an economic interest as long as the criteria set forth in this paragraph continue to be included in any version of FIFRA reauthorization considered by the Committee or the Senate.

AWPI Supports the Groundwater Protection Provisions Contained in S. 1516 as reported by the Senate Agriculture Committee.

AWPI supports the goal of the reduction of contamination of pesticides by groundwater. Therefore, AWPI strongly advocates the provisions of Title XXIII - Pesticides in Groundwater, which were included in the version of S. 1516 that was reported by the Senate Agriculture Committee. However, the Institute does not support an alternative groundwater protection measure, S. 1419. AWPI is particularly concerned with the differences in the bills in the areas of: (1) definition of the resource to be protected, (2) definition of the Ground Water Residue Guidance Level (GRGL), (3) use of the GRGL, (4) monitoring requirements, (5) Federal/ State Role, and (6) Scope of Registration Amendments.

1. Definition of the Resource to be Protected. The present version of S. 1516 distinguishes drinking water and potential drinking water from other ground water. It also includes hydrogeological and geographic considerations, depth to drinking water, and state criteria and guidelines. S. 1419 combines all groundwater defined as "underground sources of drinking water" to which it affords the same level of protection. The definition in S. 1419 could result in an enormous regulatory burden for pesticide registrants and for EPA. Therefore, AWPI favors the definition of the resource to be protected contained in S. 1516.

2. Definition of the GRGL. The GRGL in the version of S. 1516 reported by the Senate Agriculture Committee, applies to the Maximum Contaminant Level (MCL) and other trigger numbers created under a new section of the Safe Drinking Water Act (SDWA). S. 1419 uses the MCL Goal (MCLG), a number which floats, which in many instances is zero and which is not set by rulemaking. The definition of the GRGL contained in S. 1516 is supported by AWPI.

3. Use of the GRGL. The present version of S. 1516 requires a different regulatory response depending on the groundwater use. If the GRGL is exceeded for current drinking water, a site specific response is called for. When the amount of pesticide in actual and potential drinking water is approaching the GRGL (i.e. 30%), registration amendments are required. If the pesticide level in other groundwater exceeds the GRGL, EPA has the authority to initiate a special review.

S. 1419 uses a stricter GRGL to initiate more onerous responses. If a pesticide exceeds this GRGL in an underground source of drinking water, EPA must institute a site specific ban of the product. Registration changes are required if a pesticide exceeds 25% of the GRGL in an underground source of drinking water in different locations. A special review may be initiated if the GRGL is exceeded in an underground source of drinking water. This review may also be triggered by pesticide detection below the GRGL in groundwaters which would be discharged to surface water causing an adverse environmental effect.

AWPI believes that the use of the GRGL called for in S. 1516 provides an adequate protection of the groundwater resource. The Institute views the use of the GRGL advocated by S. 1419 as one which imposes excessive burdens on pesticide registrants and the EPA.

(4) Monitoring Requirement. S. 1516, as reported by the Senate Agriculture Committee gives EPA the discretion to require registrants to monitor groundwater for pesticide contamination under certain conditions (e.g. to confirm detection in drinking water, to maintain a pesticide registration, etc.). S. 1419 has a nondiscretionary requirement for registrants to monitor groundwater if the pesticide may leach, if the EPA decides monitoring is necessary to maintain the registration, or if the pesticide is found in an underground source of drinking water over 50% of the GRGL. AWPI favors the more realistic monitoring requirements in S. 1516.

(5) Role of the States. The present version of S. 1516 calls for consultation and partnerships with the states. For example, when a site specific response is called for, state action is required to reduce the pesticide concentrations in drinking water wells over the GRGL. If the state fails to act, EPA must take "appropriate action."

S. 1419 uses federal primacy to establish programs to protect groundwater from pesticides in all 50 states. Governors are required to designate a state agency to develop and submit to EPA a program to prevent surface and groundwater pollution by pesticides. The program must be submitted in 2 years and contain certain information and schedules. If EPA disapproves the program, the state fails to submit one, or the state fails to enforce its program, the state may not register and must cancel any pesticide that may leach or have run-off.

AWPI favors the consultation/partnership role of EPA and the states advocated by S. 1516. It views the provisions of S. 1419 dealing with the role of the states as creating a massive and burdensome state bureaucracy.

6. Scope of Registration Amendments. S. 1516, as reported by the Senate Agriculture Committee, requires EPA's Administrator to consider the effect of any voluntary actions by registrants or other persons, including actions by the State to prevent the GRGL from being exceeded, and compliance with other environmental laws.

> Title XXIII, Section 31 (e)(4)(D) "(D) In requiring such amendments, the Administrator shall consider the effect of any voluntary actions by registrants or other persons, including actions by the State to prevent the groundwater residue guidance level from being exceeded, and compliance with other environmental laws.

Therefore, efforts by a heavily regulated industry such as wood preserving to comply with other laws such as the Resource Conservation and Recovery Act (RCRA) or Superfund (CERCLA) might not be considered if a pesticide registration needed to be amended to protect the groundwater from contamination. This lack of consideration could result in a facility having separate monitoring wells to comply with FIFRA and RCRA. Inclusion of this provision in S. 1516 could also result in the EPA Administrator considering the differences in pesticide use in an industrial setting (such as in a wood preserving facility) and in agricultural activities. This provision is the most important portion of the groundwater protection provisions of S. 1516 to AWPI and S.1419's lack of it is very distressing to the wood preserving industry.

Conclusion

Mr. Chairman, this concludes AWPI's prepared testimony. We welcome the opportunity to work together with Congress and with EPA in order reach the goal of protecting the environment.
We will be happy to respond to any questions.

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